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FOR STANDARD III.

THE BRITISH EMPIRE

PART I.—ENGLAND AND WALES

WITH MAPS AND NUMEROUS ILLUSTRATIONS

LONDON
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1881

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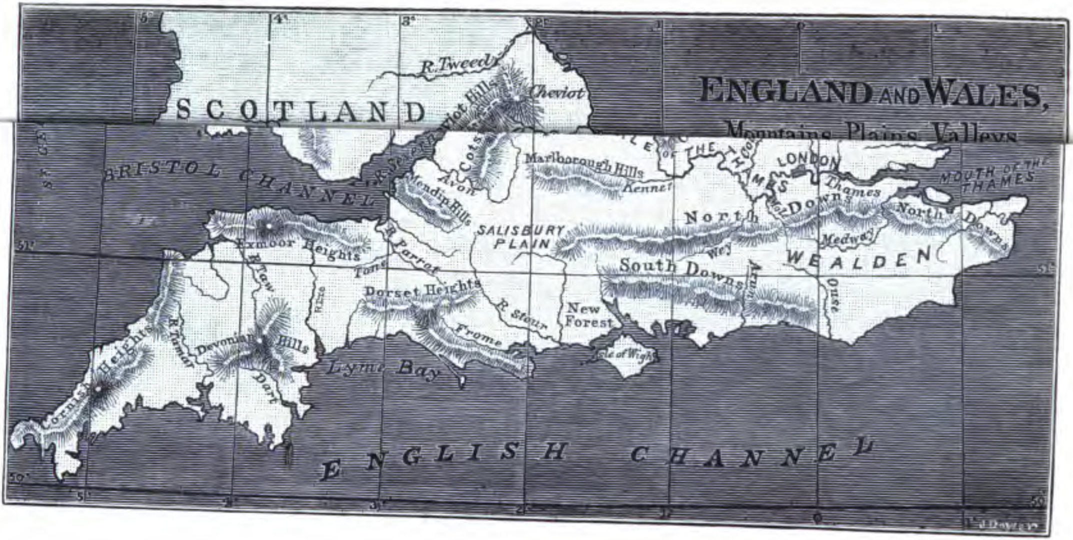

ENGLAND AND WALES,
Mountains, Plains, Valleys.

THE BRITISH EMPIRE.

PART I.—ENGLAND AND WALES.

LESSON I.

POSITION, BOUNDARIES, SHAPE, EXTENT.

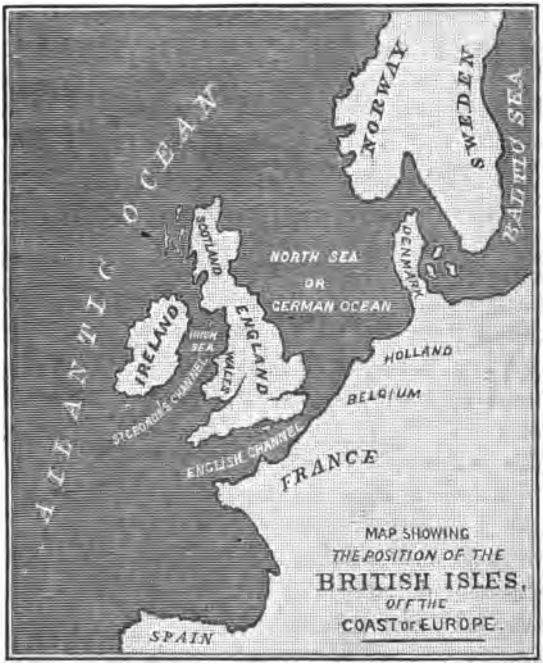
THE earth is not flat, as it seems to be. It is a very large ball, or globe. The outside of the earth is called its surface. The surface of the earth is partly land and partly water; but the portion covered by water is three times as large as the land.

The water everywhere surrounds the land, so that the whole land on the earth's surface consists of vast numbers of islands, some so small as to be mere rocks in the ocean, and uninhabitable; whilst others are so large that it would take days and weeks and even months to travel across them.

The largest of these islands is divided into three continents—Europe, Asia, Africa—each containing many countries inhabited by people speaking different languages.

Europe is the smallest of these continents. It lies almost entirely in the North Temperate Zone.

The western shores of Europe are washed by the stormy Atlantic Ocean; and off this coast lie numerous islands, the chief being a group called the British Islands.



The British Islands include the large island of Great Britain, together with Ireland—about one-third the size of Great Britain—and the smaller islands round about.

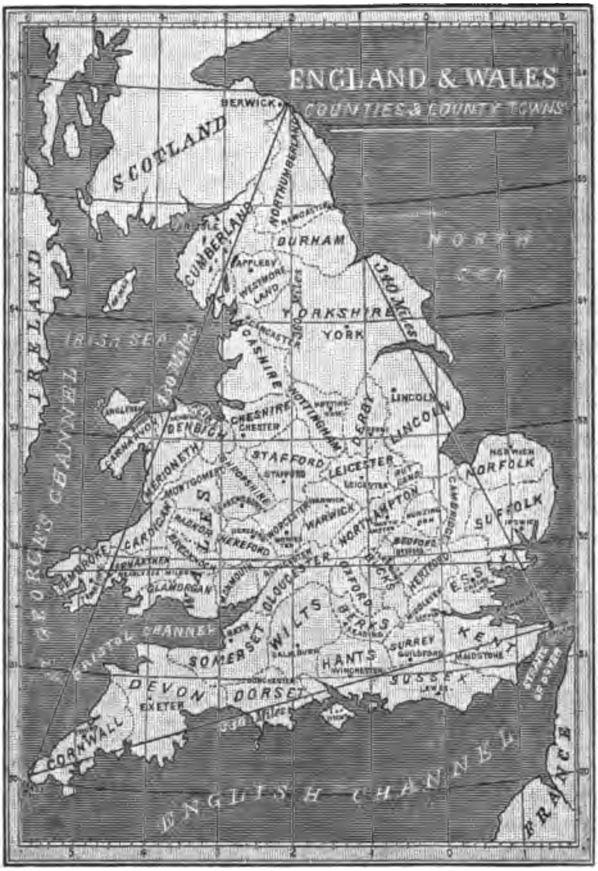
All these islands are separated from the mainland by portions of the Atlantic Ocean. That on the east of the islands is called the North Sea, or German Ocean; and that on the south the English Channel. The North Sea and the English Channel are joined by the Straits of Dover.

Ireland lies to the west of Great Britain, and is separated from it by the St. George's Channel and the Irish Sea.

Great Britain is our island home. We ought not to be ignorant of the land which gave us birth. It will be both interesting and useful for us to know something of the shores that guard us against the sea-waves; to learn about our green hills and pleasant valleys; our winding rivers and lovely lakes; barren moors and fertile plains; our mineral wealth, and the products of the soil; the character, homes, and occupations of our people, and our trade with other nations.

Great Britain consists of Scotland, which forms the northern part, and of England and Wales, which together form the southern and larger portion of the island. In this book we propose to confine our attention to England and Wales.

Let us first look at the general shape of the country. Suppose we could stretch a cord from the most northern point, near the town of Berwick, to the extreme south-eastern point, near the cape called the North Foreland; we should then, with some exceptions, skirt the coast-line all the way. If again another cord were stretched from Berwick to the south-western point, called Land's End, it



would cross a host of mountains and hills, a part of the Irish Sea and the Bristol Channel, and would show the line of coast to be very irregular. A third cord stretched from the Land's End to the North Foreland, that is, joining the ends of the other two cords, would run very near to the south coast-line.

Thus we find that the general shape of the peninsula of England and Wales is that of a triangle, with the south coast for its base. The sides of this triangle formed by the cords would measure about eleven hundred miles; but if we were to trace the coast-line all the way, following the banks of the many bays, estuaries, capes, and harbours, we should travel nearly two thousand miles.

The longest line that can be drawn from the top of the triangle to the base, in a direction from north to south, measures about three hundred and sixty miles, and the longest line from east to west about three hundred miles. The area of England and Wales is about 58,000 square miles.

---

hab'-it-a-ble
in-hab'-it-ed
oc-cu-pa'-tion
es'-tu-a-ries
coun'-tries
dif'-fer-ent
lan'-guage
pleas'-ant
sĕ'-pa-rate
char'-ac-ter
at-ten'-tion
ex-cep'-tion
ir-reg'-u-lar
ap-pear'-ance
pen-in'-su-la
tem'-per-ate

Con'-tin-ent, continued land.

Group, a collection, a number of things placed near together.

Bar'-ren, unfruitful, not productive.

Square mile, a square surface each side of which measures a mile.

A'-re-a, the space taken up by the surface of anything.

Tri-an-gle, a figure bounded by three straight lines

SUMMARY.

1. *The British Isles include Great Britain, Ireland, and the smaller islands round about. Great Britain includes England and Wales and Scotland, and the islands lying near the mainland.*

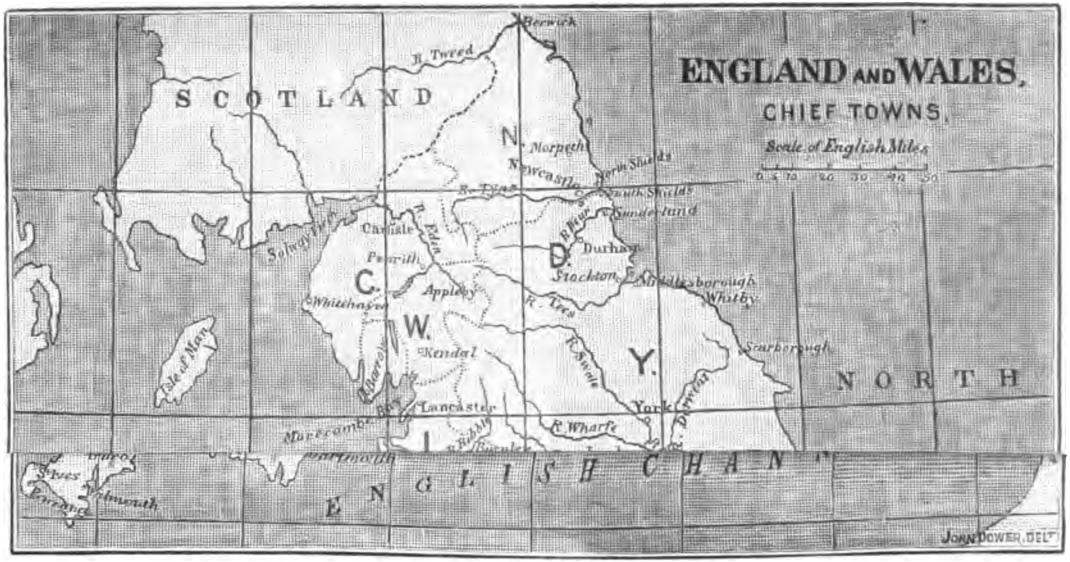
2. *England—together with Wales—has Scotland on the north, the German Ocean on the east, the English Channel on the south, and the Atlantic Ocean, St. George's Channel, and the Irish Sea, on the west. The coast-line measures nearly two thousand miles.*

3. *The area of England and Wales is about* 58,000 *square miles.*

LESSON II.

COUNTIES, TOWNS, BOROUGHS, HUNDREDS, PARISHES.

THE people who lived in this country before the invasion by the Romans nearly two thousand years ago were called Britons, and the land was known as Britain. They were for the most part little better than savages, and were divided into about thirty tribes. Most of the tribes occupied a large tract of land, on which they lived chiefly by hunting; and a few of them had no regular abode, but wandered from place to place. The boundaries of the districts were roughly defined by the rivers, and in some cases by the ridges of hills.


ENGLAND AND WALES,
CHIEF TOWNS,
Scale of English Miles
0 5 10 20 30 40 50
SCOTLAND
R. Tweed
Berwick
N.
Morpeth
Newcastle
North Shields
South Shields
Sunderland
R. Tyne
Solway Firth
Carlisle
R. Eden
Penrith
C.
Appleby
Whitehaven
D.
Durham
R. Wear
Stockton
Middlesborough
Whitby
R. Tees
W.
Kendal
Barrow
Isle of Man
R. Swale
Y.
Scarborough
NORTH
York
R. Derwent
Lancaster
Morecambe Bay
R. Wharfe
R. Ribble
St. Ives
Penzance
Falmouth
ENGLISH CHANNEL
JOHN DOWER, DELT.

ıe Romans divided the land into six districts; ın the beginning of the fifth century they were ged to leave Britain, in order to defend their country, Italy, against invaders. Then a race eople called Saxons * invaded the country; and, r many battles, extending over more than a ndred years, they became masters of the island. ey established a number of separate kingdoms, ich for a long time were more or less independent of each other. But at the beginning of the inth century all these divisions were joined into ne kingdom under Egbert, who became King of the whole land.

At a very early time the country was divided into shires (which means *shares*), and these districts were each under the rule of a great man who acted for the King. For in those days, when there were not many good roads, it was difficult for the King to reach distant places to control the people and keep them in order. These rulers on behalf of the King were called, in the old English language, "Ealdormen," "Eorls," or "Earls," and the districts they governed were termed "earldoms." The same officers, at a later date, when the Normans came into power, were called "Counts," which name was adapted from the Roman word *comites*, meaning "companions" or "comrades" of a prince. The divisions of land over which these "Counts" ruled were called "Counties."

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* There were three tribes, Jutes, Saxons, and Angles, from the *angle* or corner of the German coast where the Elbe runs into the sea. The Angles were so numerous that they gave to their new country the name of Engla-land (angle-land), or England. But the name Saxon was more famous, and has come to be used for the whole people. The best way, however, is to call the new comers what they really were, the old English.

Besides the "Count," who acted as though he were the King, and was in many cases the owner of the "county," there was an officer who had to actually carry out the law, arrest prisoners, and conduct executions. This officer was called the "Shire-reeve." The office still exists ; but the title has been shortened from shire-reeve to "Sheriff." There was another division of the land into parts called "Hundreds." This term is supposed to have meant a district containing a hundred families, over which an under-ruler was placed, and from which a certain number of fighting men were drawn. The name has survived to the present day ; but instead of a hundred families, some of these divisions have now many thousands.

The counties were not made equal in size, and their shape depended partly on the positions of mountains and rivers, and partly upon the area covered by particular tribes. Their names also were taken sometimes from special features of the country, and at others from the people of the district. The *land north* of the *Humber* was once a separate kingdom, called "Northumberland." Afterwards the name was confined to the northern part, between the Tweed and the Tyne, which forms the present county. On the *west* of the Pennine Chain, the *moor land* was termed "Westmoreland."

The place where the Romans formed one of their chief camps was first called *Castra,* which means a camp ; and from that term came the present name of "Chester," and the county name "Cheshire." The county of Lancaster takes its name from "Lunecaster"—a camp on the river *Lune.* "Essex" is the county in which the *East Saxons* lived ; "Sussex" was the home of the *South Saxons,* and "Middlesex" was the district held by the *Middle Saxons.* In a like manner, the long band of land lying on the east coast, between the Wash and the Stour, was at one time a distinct part. The people or *folk* who lived in the northern half were called *north folk ;* those in the southern part were the *south folk.* These names were naturally given to the districts inhabited by the two tribes, and at a later date were applied to the counties—*Norfolk* and *Suffolk.*

England is, at this day, divided into forty portions, called "shires" or "counties," and Wales into twelve parts so named. The smallest of these counties is "Rutlandshire," near the middle of England, measuring only 152 square miles. The largest is "Yorkshire," on the east coast, extending over 5,983 square miles. This county, being so large, was divided into three portions called *trithings* or "thirds," the North "trithing," the East "trithing," and the West "trithing." The word "trithing" has in later times been changed to "riding." There is a sheriff to execute many of the laws in each shire, and a

Lord-Lieutenant—that is, a lord who is the "*tenant*" of power in "*lieu*" or place of the monarch, or who acts for the monarch. Each county has a larger or smaller number of towns and villages, and the principal town is called the "capital." The word capital means "head" or chief, so that the capital town of a county means its chief or head town. In some cases, however, it has happened that other towns in the county have grown larger and richer than the capital. Thus Liverpool and Manchester are now much more important towns than Lancaster. The little town of Brentford is for some purposes considered the county town of Middlesex, though London now covers a large part of the county.

The word "town" means a large collection of houses; and the term "village" a small collection. Towns are frequently called "boroughs;" for they were formerly a large cluster of houses built around a "burgh" * or castle in which the leader or chief warrior lived, and where the people who had to fight for him established their homes. When a town has a cathedral—that is, a church with a bishop—it is called a City.

A further division of the country was made at a very early period into "parishes." A parish was a district in which there was at least one church or a priest. The term came originally from a Greek word meaning a union of houses in a neighbourhood. It came afterwards to mean a "priestship," or the district of a priest; and it still means the area in which the minister of the chief church is supposed to perform his office. There are at present about 12,000 parishes in England and Wales.

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* The ancient English word is "byrg" or "byrig," and survives in the names Bury, Shrewsbury, &c.

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bound'-a-ries
in-vād'-ers
ac'-tu-al-ly
ex-e-cu'-tion
min'-is-ter
be-gin'-ning
nă'-tu-ral-ly
mea'-sur-ing
col-lec'-tion
par'-ish-es
chief'-ly
rough'-ly
bor'-oughs
guard'-i-an
di-vīd'-ed
es-tab'-lished
neigh'-bour-hood
ca-the'-dral
in-de-pend'-ent
sup-posed'

In-va'-sion, entrance for the purpose of conquest.
De-fined', shown, marked, made known.
A-dapt'-ed, taken from one thing and made suitable to another.
Cent'-u-ry, a hundred years (*cent*-um = a hundred.)
Fifth century, the century beginning with A.D. 401.
Ex-tend'-ing, spreading, reaching.
Sur-viv'ed, continued, lasted.

SUMMARY.

1. *The English people are descended chiefly from the Saxons, Danes, and Normans.*

2. *England is divided into forty counties, and Wales into twelve.*

3. *The capital or county-town was formerly the chief town in the county.*

LESSON III.

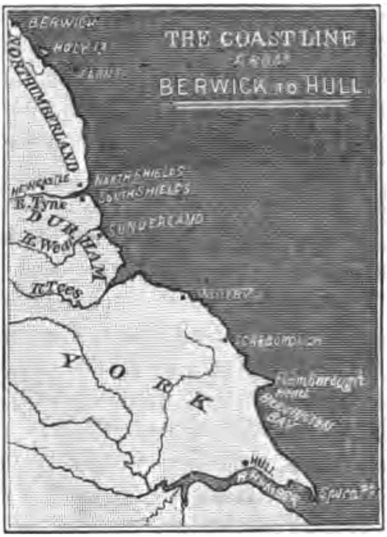
THE COAST-LINE :—*BERWICK TO HULL.*

WE will take an imaginary journey round the coast of England, and note the chief features of interest and importance, such as the principal headlands and capes, gulfs and bays, rivers and harbours, together with the seaport towns.

Let us start, then, from the old town of Berwick-on-Tweed, which occupies the most northern point of England. Berwick was celebrated in the border warfare between the English and Scots until it was made an independent town in the reign of Edward VI. A portion of the town is still surrounded by an old wall built in the reign of Queen Elizabeth ; but the old castle is a heap of ruins. The inhabitants are chiefly employed in catching salmon in the Tweed, and conducting a shipping trade along the coast.

About eight miles south of Berwick we see an island, joined at low water to the mainland by a sandbank. This is Holy Island, so called because in the early days of Christianity a famous college was established here, from which missionaries were sent to preach the gospel throughout the northern portions of the country. At a later period a monastery was built—the noted Abbey of Lindisfarne—of which the ruins may now be seen on the south part of the island. Besides the monastery, Holy Island once boasted of a strong castle, the garrison of which more than once drove back the fierce Danes to their ships.

A few miles south of Holy Island are the Farn Islands — a group of seventeen islands, of which one only is inhabited. Thousands of eider ducks, cormorants, and sea-gulls, haunt the barren islets, and build their nests in the crannies and hollow places in the rocks.



Longstone Rock is the scene of the heroism of Grace Darling. William Darling was the keeper of Longstone Lighthouse, and his daughter Grace acted as his assistant. Before daybreak on the morning of the 6th of September, 1838, a furious gale was blowing; and Grace, who was on the watch, thought she heard cries of distress coming from some rocks about a mile away. She awoke her father, and together they listened to the appeals for help; but in the darkness nothing could be done. The morning revealed the wreck, and some people clinging to it. The old man launched his boat; but hesitated to put off in such a boiling sea. Grace, however, seized an oar and jumped into the boat; and her father—animated by her example—followed her. Through the foaming waves, threatening every moment to overwhelm them, they pulled to the wreck. Here they found nine people, five of the crew and four passengers of the ship *Forfarshire,* clinging to the fore part of the vessel, which alone remained. With the greatest difficulty they succeeded in rescuing the shivering and exhausted men, and in conveying them, a few at a time, to the lighthouse. The courage of Grace Darling excited the admiration of all who heard of it, and she was rewarded with a public subscription of over £700, and many other presents. Grace died four years after, at the early age of twenty-six, and two beautiful memorials were erected to her memory—one in the churchyard of the little village of Bamborough, opposite the islands, and one in St. Cuthbert's Chapel, on the Farn Island.

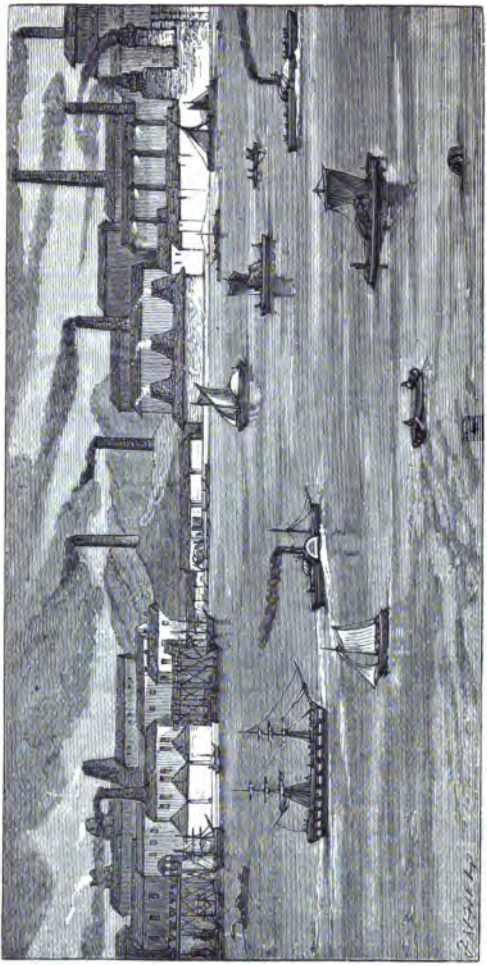
From Berwick to the "coaly Tyne" is the fringe of the county of Northumberland. It consists of high, bleak, and dreary-looking rocks, with no harbours except those formed by the mouths of the rivers. The river Tyne divides the counties of Northumberland and Durham. Tynemouth, a pleasant watering-place, is built on the North Bank, and a little further inland from the sea stand North and South Shields, on opposite sides of the river.

Half-a-dozen miles up the river we come to Newcastle, the chief town of Northumberland.

HIGH LEVEL BRIDGE, NEWCASTLE.

Newcastle, on the north bank, is joined to Gateshead on the south by a double bridge (called the High Level Bridge), the lower roadway being used for carriages and foot passengers, while the upper carries the railway.

The towns on the banks of the Tyne are engaged in exporting coals, which are taken from the mines of an enormous coal-field stretching through



ON THE TYNE.

a large portion of Durham and Northumberland.

Both banks of the river from Newcastle are covered with coal-wharves, iron foundries, glass-works, and ship-building yards.

The county of Durham has only about twenty miles of sea-coast. Six miles south of the Tyne is the mouth of the river Wear, on which is built the town of Sunderland. Sunderland exports coal, and is also noted for ship-building. The river Tees divides the counties of Durham and York.

The coast of Yorkshire for many miles is a succession of rocky cliffs. Continuing our survey from the mouth of the Tees, the first town of any importance at which we arrive is Whitby. Near this town fine jet is found, from which brooches, necklaces, and other trinkets are manufactured. About fourteen miles further southward we come to Scarborough, a handsome town and fashionable watering-place built in the recess of a beautiful bay. This bay is much sought by ships in distress during the violent easterly gales that prevail off the Yorkshire coast.

Just opposite Scarborough is the Dogger-Bank —a vast sand bank, stretching from near the shore right across the North Sea, a distance of three hundred miles, to within about sixty miles of Denmark. This is a famous fishing-ground, and when the weather is favourable thousands of fishermen find employment in catching all kinds of fish to supply the markets of the country.

Flamborough Head, a few miles south of Scarborough, is the most prominent headland on the east coast. It is a bright chalk cliff about three hundred feet high, and is surmounted by a towering light-house, with a revolving light that may be seen thirty miles off. On the north side of the cliff vast caverns—the homes of thousands of sea-birds—have been hollowed out by the force of the waves. On the south side of the peak is Bridlington Bay, partly protected from the furious gales of the North Sea by a sandbank termed the "Smithie," a short distance from the shore.

As we proceed southwards the chalk cliffs give place to clay and gravel. Spurn Head, the southern point of the Yorkshire coast, curls backward in the form of a hook into the river Humber. It is Yorkshire's "curly tail." The action of the sea is fast carrying away the land at this point, and along many miles of the shore which we have passed. In the old maps of Yorkshire, many towns and villages are marked, the sites of which are now beneath the German Ocean.

The estuary of the Humber is the highway for a great many ships bringing flax, hemp, wool, corn, and timber from other countries across the German Ocean. They sail to the port of Hull, twenty-three miles from the sea, and there deliver their cargoes. The river Humber divides the counties of York and Lincoln.

---

journ′-ey
fea′-tures
catch′-ing
car′-goes
he′-ro-ism
gar′-ri-son
suc-ceed′-ed
res′-cu-ing
ex-cīt′-ed
e-norm′-ous
cel-e-brāt-ed
mon′-as-ter-y
hes′-i-tāt-ed
an-i-māt-ed
ex-haust′-ed
con-vey′-ing
sub-scrip′-tion
suc-ces′-sion
fa′-vour-a-ble
fash′-ion-a-ble

Im-ag′-in-a-ry, fancied, not real.

Mis′-sion-a-ries, persons sent to preach.

In-de-pend′-ent, standing by itself, not belonging to one country or the other.

Cran′-nies, open cracks, or slits.

Re-veal′-ed, showed, made known.

Ex-cīt′-ed, roused, filled with life and spirit.

Ex-port′-ing, carrying goods *out* of a country.

Ei′-der ducks (pronounced *ider*), sea birds like ducks, but with thick down much prized for its fineness and warmth.

Wharves, places by the sides of rivers and canals for loading and unloading goods.

Watering-place, a place to which people go for sea-bathing, or drinking some particular water found in the neighbourhood.

Pro′-min-ent, standing out boldly forward.

Re-volv′-ing, turning on its own axis.

Cor′-mor-ants, sea birds noted for their voracity.

SUMMARY.

From Berwick to Hull the following are the chief—

1. **Capes.**—*Flamborough Head, Spurn Point.*
2. **Rivers.**—*Tweed, Tyne, Wear, Tees, Humber.*
3. **Towns.**—*Berwick, Tynemouth, North and South Shields, Newcastle, Sunderland, Whitby, Scarborough, Hull.*

LESSON IV.

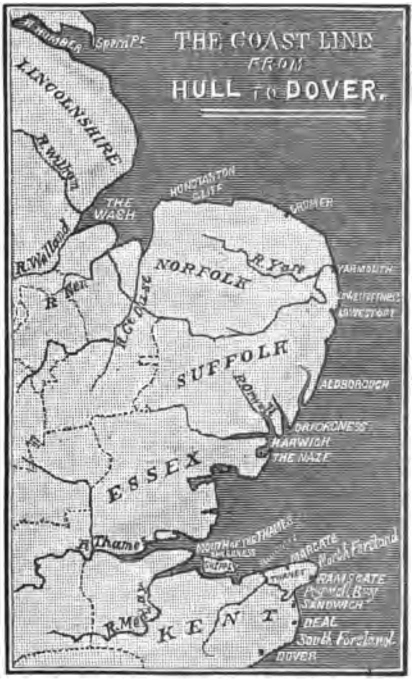
THE COAST-LINE:—*HULL TO DOVER.*

Skirting the low, flat, and sandy coast of Lincolnshire we come to the wide estuary of the Wash, enclosed by the counties of Lincoln and Norfolk, and open to the sea towards the north-east. The land around the shores of the Wash is in many places below the level of the ocean; and banks have been raised to keep back the water. There is a tract of land spreading on both sides of this great opening, and also beyond the inner end of it, which measures 400,000 acres. It is called Bedford Level, because the Duke of *Bedford*, in the seventeenth century, drained the *level* ground of its waters, and converted it into farms. The Rivers Witham, Welland, Nen, and the Great Ouse, run through this Level, and empty their waters into the shallow Wash.

As we leave the Wash we see a hard cliff of chalk, eighty feet high, forming the northern point of Norfolk. This is Hunstanton Cliff. A lighthouse is built on the top, to warn sailors of the dangerous sandbanks which abound here. From this point the coast runs in an easterly direction as far as the pretty little village of Cromer. The shore consists mainly of clay, chalk, gravel, and low stretches of sand. Here the sea is continually encroaching on the land; and whole towns have been gradually engulfed by the devouring ocean. The ancient town of Cromer lies buried beneath the waves, and the sea yet threatens to follow the inhabitants still further into the land.

From Cromer the coast gradually curves round to the south, and we arrive at Yarmouth ("*mouth*" of the "*Yare*"). This town, which is built on the south side of the river Yare, is the chief place in England for the herring fishery. Upwards of two hundred boats, manned by two thousand men, are employed in this fishery. About two miles from the shore, and running in a parallel line with it, is an enormous sand-bank. The channel between the sand-bank and the shore is called the "Yarmouth Roads." The sand-bank breaks the force of the waves, and the "Roads" thus afford a safe anchorage for ships. Many years ago, through ships striking on the half-hidden sands, wrecks were numerous; but now the position of the banks is well marked by a line of buoys and floating lights.

A few miles farther south we pass the most easterly point of England, Lowestoft Ness, and the handsome town of Lowestoft. The coast of Suffolk, like that of the southern parts of York, Lincoln, and Norfolk, is being gradually changed by the inroads of the sea. A little more than twenty miles from Yarmouth is the village of Dunwich, consisting of a few poor houses, which shelter forty or fifty families; but beneath the waves lies buried a city, that once held a cathedral, a king's palace, and a fortress. So great was the city, and so difficult of attack, that the Earl of Leicester, in the war waged against Henry II., after having overrun the counties of Norfolk and Suffolk, and reduced the people to obedience, gave up the attack on the strong city of Dunwich.



Proceeding southward we pass the little seaport and fishing-town of Aldborough, the "*borough,*" at the mouth of the "*Alde;*" then the nose of land known as Orfordness; and, skirting a wasting shore, we arrive at the river Orwell, the estuary of which forms the noble harbour of Harwich.

We have now reached the coast of Essex, which is low, marshy, and very much indented. A little south of Harwich a point of land, curving partly round in a northerly direction, is called the Naze, a word which means "*nose.*" The ancient churchyard of Walton-on-the-Naze has been washed away.

The broad river Thames forms the southern boundary of Essex, and separates it from Kent. At the mouth of the Thames there is the point of Shoeburyness on the north, and the Isle of Sheppey on the south. London, the capital of England, is built on the Thames, about forty miles from its mouth. And the trade of London is so great that on the broad estuary of the river we meet with more ships—steamers and sailing-vessels of all sizes—than in any other river of the world. The river Medway pours its waters into the mouth of the Thames west of Sheppey, near the fortified town of Sheerness, which is built on the margin of the island.

We now proceed in an easterly direction, passing the old village of Reculvers—once some distance from the sea, now on the very edge of the cliff—and the favourite watering-places of Herne Bay and Margate, until we reach the North Foreland. Here the coast line runs southward again as far as the South Foreland. Between the North and South Forelands we have the towns of Ramsgate, Sandwich, and Deal.

The north-west corner of Kent forms the "Isle of Thanet." It was here that the Jutes from Denmark, the first branch of the English race to settle in this country, landed from their ships in the middle of the fifth century. The Isle of Thanet was then separated from the mainland by a waterway four miles wide. That wide gap has now been almost filled up by sand washed in by the sea; and Thanet has been practically joined to the mainland. Sandwich, again, was once a seaport, but is now some two miles inland. We thus see that whilst the sea encroaches on the land in some parts, in others the land encroaches on the

SHEERNESS.

sea. Pegwell Bay, famous for oysters and shrimps, lies between Ramsgate and Sandwich.

At a distance varying from two to seven miles off the coast from Deal are the famous but much-dreaded " Goodwin Sands." The Goodwin Sands consist of an immense sandbank, two miles wide and ten miles long, which is buried under the sea at high-water, although parts of it can be seen when the tide is down. The site of the Goodwin Sands is said to have been at one time joined to the mainland, and to have formed part of an estate belonging to Earl Godwin, the father of King Harold. The monks of Canterbury, to whom the land was given, failed to keep in repair the sea-wall which protected it from the sea. Through this neglect, so the story goes, the whole of the low-lying tract was cut off from the land, and buried by the ocean, thus forming a dangerous bar —the scene of many terrible shipwrecks and fearful sufferings. The deep channel between the sand-bank and the shore is known as the "Downs," where, the force of the waves being broken, ships can ride in safety. Here, in rough weather, we may see many vessels waiting till the storms are over before venturing out into the open sea.

A short distance south-west of the South Foreland is the old town of Dover, with a strong castle and fortress. From the white cliffs of Dover, on a clear day, the French coast may be seen across the " straits," about twenty-two miles off.

WRECK ON GOODWIN SANDS.

en-closed′
ter′-ri-ble
an′-cient
south′-ern
grad′-u-al-ly
prac′-tic-ally
en-croach′-es
north′-er-ly
de-vour′-ing
an′-chor-age
o-be′-di-ence
east′-er-ly
con-tin′-u-al-ly
em-ploy′-ed
sĕ′-par-ates
fa′-vour-ite

---

built
wreck
rough
straits

Skirt′-ing, going along the edge or border.
En-croach′-ing, pushing into, gradually taking possession of.
En-gulf′-ed, swallowed up.
Par′-al-lel, places or lines running side by side, and having always an equal distance from one another.
Fifth century, the hundred years beginning with A.D. 401.
Buoy, a close empty cask, or a block of wood or cork, fastened to an anchor, but floating on the water to mark the position of a shallow, or rock.
In-dent′-ed, bitten into, notched like the teeth of a saw.
Mar′-gin, the edge.

SUMMARY.

From Hull to Dover the following are the chief—

1. **Capes.**—*Hunstanton Cliff, Lowestoft Ness, Orfordness, Naze, North and South Forelands.*
2. **Rivers.**—*Humber, Witham, Welland, Nen, Great Ouse, Yare, Thames, Medway.*
3. **Bays.**—*Wash, Harwich Harbour, Pegwell Bay.*
4. **Towns.**—*Yarmouth, London, Sheerness, Margate, Ramsgate, Deal, Dover.*

LESSON V.

THE COASTLINE:—*DOVER TO PLYMOUTH.*

FROM Dover, in Kent, to the bold, wild-looking cliff called Beachy Head, in Sussex, the coast would be almost in a straight line, but for one curious point called Dungeness. And how is it that this great nose of shingle points out into the sea for miles? It is not part of the solid shore, but is formed from loose stones piled together out of the water. The fact is curious, but the cause is very easily understood. Just at this place the tides from the North Sea and the Atlantic Ocean meet together. In their fight against each other they roll up the stony bottom of the sea, and thus in the course of centuries Dungeness has been built up.

Between Dover and Beachy Head we have the towns of Folkestone, Hythe (with its school of musketry), Hastings, and Eastbourne. The last two are fashionable watering-places. Hastings is the last of the Cinque Ports. Perhaps you know that *cinque* is the French word for "five;" and you may have heard that many years ago five towns on the south-east coast were required to find ships and fighting-men to defend the coast in time of war. These five ports were Dover, Sandwich, Hythe, Romney, and Hastings. In return for being liable to be called upon to render service in time of war, the people of these towns were granted special privileges by the Crown.

BEACHY HEAD.

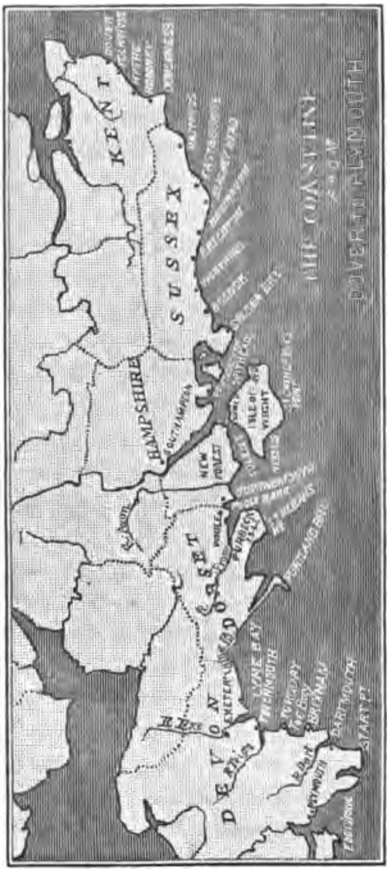
The coast-line of Sussex from Beachy Head to Selsea Bill is tolerably even, and has but few features of interest. Newhaven, a port for France;

Brighton, a fashionable watering-place; Worthing, and Bognor all lie on the Sussex coast.

So far we have seen but few harbours along the south coast. Rocks and cliffs seem to say to sailors, "Beware, you cannot land here!" But westward of Selsea Bill beautiful landscapes abound, and green fields and rich woods often stretch down to the water's edge.

The coast of Hampshire is full of interest. First we have Portsmouth, the grandest naval station of the country. Portsmouth boasts of a dockyard and an arsenal, and is very strongly fortified. Then we have the Isle of Wight, "the garden of England." This is separated from the mainland by an arm of the English Channel, the eastern portion of which is called Spithead, and the western the Solent. Spithead is so called from a "head" of land at the end of a "spit" or point of sand which runs off from the mainland, but is always covered with water. The roadstead of Spithead is so large that a thousand sail of vessels may lie safely at anchor. In this roadstead in the year 1782 the *Royal George,* a first-rate man-of-war, foundered. The ship was thrown on her side for repairs, when, through the neglect of a lieutenant, she was overbalanced; the water came in through her port-holes, and she sank. Out of her crew of nine hundred men only about two hundred were saved.

Sailing westward from Spithead, we have the Isle of Wight, with the important town of Ryde on our left, and the mainland on our right. As we enter the part of the Channel called the Solent we see on our right hand a wide opening of water stretching far into the land; this is Southampton Water. At its head stands Southampton, an important packet station. Opposite Southampton Water, on the island, stands Cowes, and Osborne, a favourite residence of the Queen. And what is that vast forest of trees which we see stretching for many miles between Southampton Water and the Solent? That is the New Forest, set apart for hunting by



William the Conqueror more than eight hundred years ago. In this forest one of the Conqueror's sons—William Rufus—was killed by an arrow.

Passing out of the Solent into the open sea, we notice, standing forward from the mainland, a tongue of land two miles long and only about two hundred yards wide at high water. At the end of this narrow causeway stands Hurst Castle, now a coastguard station, where Charles I. was kept a prisoner for several days before being brought to London for his trial. On the beach two lighthouses have been erected to warn mariners of the dangers of the coast. On our left-hand, off the western side of the Isle of Wight, there is a chain of tall pointed rocks known as the Needles. Passing the mouth of the River Avon, we come to Bournemouth, a pleasant watering-place, at the extreme end of the Hampshire coast.

We next arrive at the coast of Dorsetshire, remarkable in its eastern portion for the curious shapes it takes. A short distance from Bournemouth we come to the harbour and port of Poole. In this harbour are some famous oyster beds. The southern boundary of Poole harbour is formed by a peninsula called Purbeck Isle. It is so nearly surrounded by the sea and the River Frome as to almost warrant its bearing the name of an island. A fine stone, capable of being highly polished, called Purbeck Marble, is taken from the quarries of this peninsula. St. Alban's Head occupies the most southern point.

Some twenty miles west of Purbeck Isle, on the same coast of Dorset, there is a narrow strip of land, shaped like a very long thin leg with a very large foot. This is Portland Isle, although, like Purbeck Isle, it is really a peninsula. The link that connects the island with the mainland is a singular ridge of pebbles known as Chesil Bank. The narrow strip of water that seems to cut off the peninsula is called the Fleet. Portland Isle is noted for fine building stone, known as Portland stone, large quantities of which are shipped to the metropolis for building purposes. The extreme point of Portland Isle is called Portland Bill, for it juts out like the beak, or "bill," of a bird.

The coast of Dorsetshire from Portland Bill, together with the coast of Devonshire as far as Start Point, forms a fine curve of coast, which encloses a fine bay called Lyme Bay. On this bay we pass the towns of Lyme Regis; Teignmouth, at the "*mouth*" of the "*Teign;*" Torquay, a famous winter resort for invalids; and Dartmouth, at the "*mouth*" of the "*Dart,*" the most beautiful river in England. Exeter is about nine miles inland, on the River "Exe." Between the Teign and the Dart stands Torbay—a bay within a bay—a wide notch in the western shore of Lyme Bay. The southern head of Torbay overlooks the town of Brixham, where William III. landed when he arrived in England, in 1688. Rounding Start and Prawle Points, and sailing north-west along a somewhat rugged coast, we arrive at Plymouth Sound.

land'-scape
road'-stead
isle
mus'-ket-ry
beau'-ti-ful
cause'-way
cūr'-i-ous
quar'-ries
oys'-ter
lieu-ten'-ant
rĕ'-sid-ence
notch

"Spe'-ci-al priv'-i-leg-es," advantages, rights or favours not enjoyed by others.
Ar'-se-nal, a place where weapons of war are made or stored.
Dock'-yard, a place where ships are built, or naval stores kept.
Fort'-i-fi-ed, made strong to resist the attacks of an enemy.
Found'-er-ed, sank in the sea.
Pack'-et Sta'-tion, a place from which the ships carrying letters are regularly dispatched.
Port-holes, windows, or openings for cannon in the sides of a ship.
Coast-guard, officers who watch the shores to see that no goods liable to duty are landed without payment.

SUMMARY.

From Dover to Plymouth the following are the chief—

1. **Capes.**—*Dungeness, Beachy Head, Selsea Bill, Needles, St. Alban's Head, Portland Bill.*
2. **Rivers.**—*Avon, Exe, Teign, Dart.*
3. **Bays, &c.**—*Portsmouth Harbour, Southampton Water, Lyme Bay, Torbay.*
4. **Towns.**—*Folkestone, Hastings, Brighton, Portsmouth, Southampton, Bournemouth, Poole, Plymouth.*

LESSON VI.

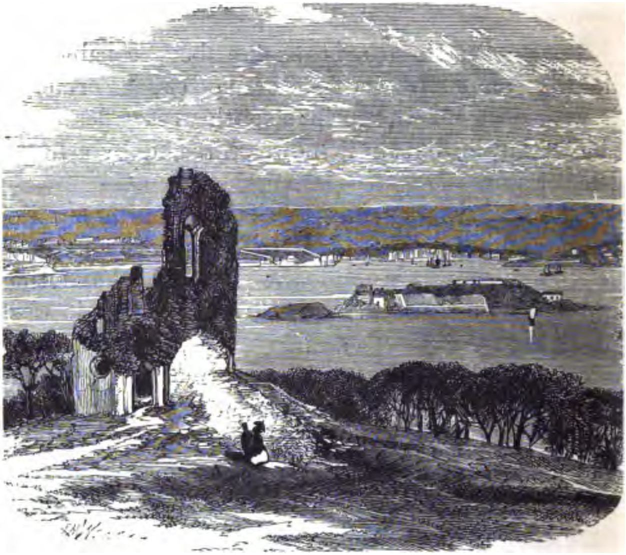
THE COAST-LINE :—*PLYMOUTH TO BRISTOL.*

PLYMOUTH SOUND is a fine bay, capable of holding an enormous fleet of vessels. Formerly it was open to the furious south-west gales from the Atlantic, but it is now protected by a huge Breakwater.

The Breakwater is a wall of granite a mile long, and over 200 feet wide at the bottom. It tapers upwards, and the breadth above the water is 30 feet. You will wonder how it was possible to build such an immense wall in a stormy sea. In the first instance enormous blocks of stone, too heavy for the tide to move, were dropped from boats to the bottom; and when sufficient had been deposited to make the reef nearly level with the surface of the water, blocks of hewn stone were cemented on to it. It has now the appearance of a very long broad wall stretching nearly across the bay, but leaving openings at either end for the passage of ships.

The Rivers Tamar and Hamoaze join their waters and flow together into the Sound.

Plymouth is built on the Sound, and Devonport on the harbour, formed by the waters of the combined rivers. Devonport, like Portsmouth, has a fine dockyard. Opposite the Breakwater and about a dozen miles off is the famous Eddystone Lighthouse, to warn mariners of the dangerous reef of rocks on which it stands. This lighthouse is built of Portland stone encased in granite, and is 72 feet high. It has borne the storms of a hundred and twenty years without showing the slightest signs of decay. But although the work of man has been so far durable, the incessant war between the waves and the rocks has ended in the victory of the former; and the rocks on

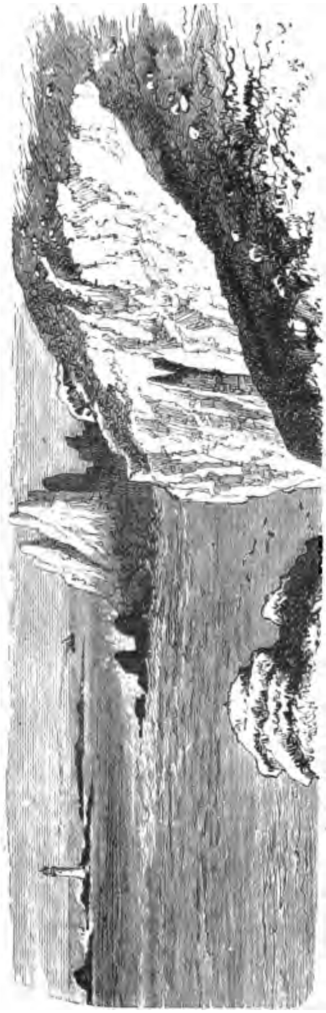

PLYMOUTH SOUND, AND DRAKE'S ISLAND.

which Smeaton's lighthouse stands are so undermined by the waves, that a new lighthouse was commenced in 1879 on a rock close by.

Sailing west and south-west along the rugged shores of Cornwall, we arrive at another spacious creek, which, having a good anchorage, is much sought after by outward-bound vessels as a place of shelter until a favourable wind carries them out into the broad Atlantic. This is Falmouth Harbour, at one time the chief packet-station for foreign letters, and now a principal port for the pilchard fishery.

MOUNT'S BAY, PENZANCE, AND ST. MICHAEL'S MOUNT.

From Lizard Point, the most southerly peak in England, to Land's End, the most westerly, the distance is only about 24 miles across the opening of the beautiful Mount's Bay. At the head of Mount's Bay, some half a mile from the



LAND'S END.

shore, a great granite rock in the shape of a cone rears its head, and is seen at low water to be joined to the mainland, so that people can walk across. This is St. Michael's Mount. The remains of a chapel, said to have been founded in the fifth century, and an ancient monastery, now converted into a dwelling-house, occupy the summit of the mount. At the western end of the bay is the town of Penzance, noted for the exportation of pilchards and other fish, and some tin and copper.

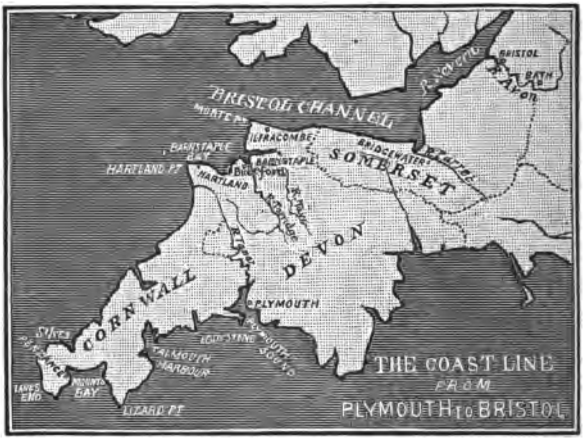
Land's End is a lofty ridge of

granite extending far into the sea, the summit being crowned by rocks which have the appearance of some vast castle; and on either side are other gigantic granite rocks having a similar appearance. Indeed the whole of the western side of Cornwall, as well as the little peninsula of which Land's End is the extreme point, consists of a succession of wild and rocky ridges, broken here and there by some small inlets, on which fishing villages are built. We have seen that on the eastern and south-eastern shores the sea is continually undermining and washing away the softer rocks of clay, and chalk, and gravel; but even the gigantic waves of the stormy

CLIFFS ON THE WEST COAST OF CORNWALL.

Atlantic make little or no impression on the granite rocks of Cornwall.

But when we leave Cornwall, and pass Hartland Point and Barnstaple Bay, on the north-west coast of Devon, the character of the coast changes. Tall cliffs are still numerous, but they are less rugged; and the little coombs and hollows are well wooded down to the water's edge. Indeed, the scenery along the shores of North Devon and Somerset is among the most beautiful to be found in England. The pretty little village of Clovelly nestles in an angle of the cliffs near Hartland Point. Its main street is a flight of steps, and people standing at their own doors overlook the roofs of their nearest neighbours. The town of Bideford, on the Torridge, a noted seaport in old


THE COAST LINE FROM PLYMOUTH TO BRISTOL

times, is a few miles away to the east. The River Taw joins the Torridge to form a large estuary on Bideford Bay; and a few miles up the Taw is the town of Barnstaple, which disputes with Bideford the right of giving its name to the bay. The western shore of the bay runs north to Morte Point; and round that point we reach the fashionable watering-place of Ilfracombe.

A large arm of the Atlantic, called the Bristol Channel, stretches into the land as far as Gloucestershire, and separates England from Wales. It receives the waters of the Severn and its numerous tributaries. On one of these, the beautiful Avon—12 miles from the Bristol Channel—stands the important city and port of Bristol.

ăn'-cient
spa'-cious
reef
căp'-a-ble
mar'-i-ners
gran'-ite
e-norm'-ous
pro-tect'-ed
cone
ap-pear'-ance
gi-gan'-tic
pil'-chards

De-pos'-it-ed, placed down.
Hewn, cut to shape.
Ce-ment'-ed, fastened with a kind of mortar which hardens under water.
En-cas'-ed, covered in, enclosed.
Un-der-mined', "eaten" away below.
In-ces'-sant, constant, never ceasing.
Con-vert'-ed, changed.
Coomb, a small narrow valley.
Trib'-u-ta-ries, rivers or streams that run into other rivers or streams.
Ta'-per, to grow thinner.

SUMMARY.

From Plymouth to Bristol the following are the chief—

1. **Capes**—*Lizard Point, Land's End, Hartland Point.*

2. **Rivers**—*Tamar, Torridge, Taw, Avon.*

3. **Bays, &c.**—*Falmouth Harbour, Mount's Bay, Barnstaple (or Bideford) Bay.*

4. **Towns**—*Penzance, Bideford, Barnstaple, Ilfracombe, Bristol.*

LESSON VII.

CARDIFF CASTLE.

THE COAST-LINE:—*BRISTOL TO THE SOLWAY FIRTH.*

We now proceed westward along the Welsh coast. The first important town we see is Cardiff in Glamorganshire, at the mouth of the River Taff. Cardiff is an ancient town surrounded by an old wall. It was once strongly fortified. Robert, Duke of Normandy, was confined in its castle for a period of twenty-eight years. From Cardiff a canal runs a distance of 25 miles among the mountains, leading to the important iron works of Merthyr-Tydvil. Further westward is Swansea, on a bay of the same name; a town engaged in copper-smelting, and exporting copper, iron, and coals.

WORM'S HEAD.

Between Worm's Head and Gowan's Head lies the Bay of Carmarthen, with the old town of Carmarthen a little way inland on the River Towy. Tenby, a fashionable and rising watering-place, is also prettily situated on the same bay.

The coast of Pembroke is much indented ; the principal arm of the sea being the fine estuary of Milford Haven. The town of Milford, on the north side of the estuary, once boasted a royal dockyard and an arsenal ; but in 1814 they were removed to Pembroke, on the south side of the Haven.

North of Milford Haven is St. Bride's Bay, beyond which is St. David's Head, the most westerly point of Wales. From St. David's Head the cathedral city of St. David's, which looks like a poor little village, stands inland at a distance of two miles.

The greater portion of the western shores of Wales are bounded by the extensive Bay of Cardigan. All along this coast there is little but wild and rocky heights, and not a single good harbour. The same character of coast-line prevails round the peninsula of Carnarvon (the extreme point of which is called Braich-y-Pwll), until we arrive at Carnarvon Bay and the Menai Straits.

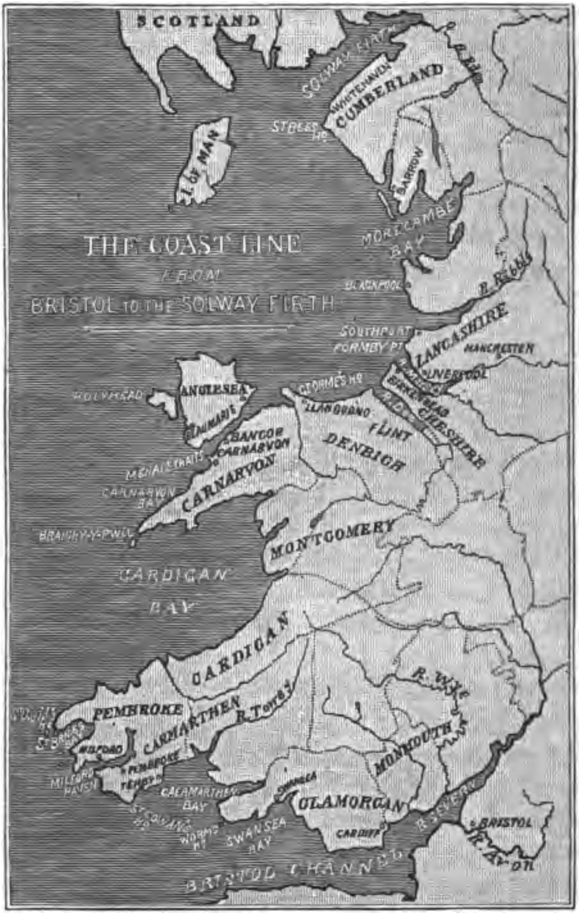
The Menai Strait is an arm of the sea 14 miles long, and not more than a mile wide, dividing the island and county of Anglesea from the mainland. To the north-west of Anglesea, on a small island, stands the packet-station of Holyhead, the nearest port to Ireland. Prior to 1825 the Menai Straits had to be crossed in ferry-boats; but the danger and trouble of this plan were so keenly felt that a handsome chain bridge was erected, 560 feet long. Since then, a tubular bridge, through which the Chester and Holyhead Railway runs, has been constructed by Robert Stephenson, the eminent railway engineer. Carnarvon and Bangor are towns on the mainland shore, and Beaumaris is on the island.

From Beaumaris Bay, lying north of the Menai Straits, between Anglesea and the mainland, we pass eastward near the lofty promontory of Great Orme's Head, and the fashionable watering-place of Llandudno. In the angle between Great Orme's Head and the Carnarvonshire shore stands the old town of Conway, with its castle, on a river of the same name. Then, after a course of about 40 miles, we arrive at the wide estuary of the Dee.

Rounding the peninsula formed by the mouths of the rivers Dee and Mersey, we enter the latter river, and see the great ship-building town of Birkenhead on our right hand, and the still greater port of Liverpool on our left.

In commercial importance Liverpool is second only to London; its *export* trade is even considerably larger. A little more than a century ago Liverpool possessed only three small docks, and between two and three hundred vessels belonged to the port. Now it boasts of 10,000 vessels;

and not less than 30,000 vessels trade to and from this port every year.



Leaving Liverpool, we skirt the low Lancashire coast in a northerly direction, and passing Formby Point we reach the town of Southport, noted for its mild winter climate, and a favourite resort of Lancashire people. Blackpool and Lytham, a little farther to the north, across the mouth of the Ribble, are also well-known watering-places. On crossing Morecambe Bay we come to Barrow-in-Furness. Barrow possesses a fine harbour, protected by a long strip of land—the Isle of Walney—lying a short distance from the shore.

From Morecambe Bay we skirt the rocky coast of Cumberland, the most prominent point of which is St. Bee's Head. A little north of St. Bee's Head is the important port of Whitehaven, from which quantities of coal are shipped to Ireland.

Continuing northwards, for the last 30 miles the nature of the coast again changes. The rugged cliffs are replaced by marshy tracts, which form the English bank of the Solway Firth.

The Solway Firth is noted for its tides. At *ebb* the upper parts are dry sand from shore to shore, whilst at *flow* the tide rushes in with a wave from 3 to 6 feet high, having a speed of 8 or 10 miles an hour.

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con-fined'
es'-tu-a-ry
west'-er-ly
heights
ex-ten'-sive
con-struct'-ed
prŏ'-mon-tor-y
en-gin-eer'
bridge
ĕ'-min-ent
north'-er-ly
re-placed'
fash'-ion-a-ble
skirt
poss-essed'
di-rec'-tion
quant'-i-ties
tract

Tŭb'-u-lar, constructed like a tube or pipe.

Com-mer'-cial, concerned with trade.

SUMMARY.

From Bristol to the Solway Firth the following are the chief—

1. **Capes**—*Worm's Head, Gowan's Head, St. David's Head, Braich-y-Pwll,** *Great Orme's Head, Formby Point, St. Bee's Head.*

2. **Rivers**—*Severn, Wye, Conway, Dee, Mersey, Ribble.*

3. **Bays, &c.**—*Swansea Bay, Carmarthen Bay, Milford Haven, St. Bride's Bay, Cardigan Bay, Carnarvon Bay, Menai Straits, Morecambe Bay.*

4. **Towns**—*Cardiff, Swansea, Tenby, Carnarvon, Bangor, Holyhead, Conway, Llandudno, Birkenhead, Liverpool, Southport, Blackpool, Barrow-in-Furness, Whitehaven.*

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* The w is pronounced like u in "*pull;*" the double l has a sound not known in English, but almost like "thl."

LESSON VIII.

THE COAST-LINE :—*CONCLUSION.*

We have travelled nearly two thousand miles round the coast of England and Wales—from the river Tweed to the Solway Firth. We have seen at some places the mountains and hills ending abruptly at the shore, forming bold and rocky cliffs, which defy the action of the sea; at other places the soft lands—the clay, gravel, sand, and the softer chalk—are giving way before the attacks of the unceasing waves; whilst at other places, again, sand, and pebbles, and mud are being thrown up by the ocean, forming new banks and new shores. By the constant changes thus being brought about in the shape of the coast we are losing long stretches of land, with the towns and villages upon them—slowly, it is true, but surely; and as slowly and surely we are gaining in other places fresh land on which to erect new dwellings.

The numerous bays, harbours, and river mouths which we have seen, are so many inlets and outlets for ships trading not only between our own ports, but to all parts of the world. They serve, moreover, as places of shelter during the violent storms which prevail—especially in winter—round our coasts.

The many points of land running out into the sea, the numerous sand-banks, and the jagged rocks met with here and there, some hiding their sharp points just beneath the surface of the water, all are so many danger-spots to the thousands of vessels which pass to and fro. Considering the enormous amount of traffic, there is probably no coast in the world more dangerous than that of England. There are no seas heavier than the Atlantic rollers which beat

CLIFF IN SOUTH WALES.

EDDYSTONE LIGHTHOUSE.

upon the south-west corner, the thunder of which can be heard many miles off. Nor are there any currents more shifty, or banks more thickly strewn with wreck, than those which stretch in full sight of the shore off the east coast of Kent. The shifting sand-banks and the violent gales off the north-east, again, are the cause of many wrecks every year. Notwithstanding that lighthouses have been built on or near all the dangerous reefs and sand-banks, about four thousand wrecks occur annually, and nearly a thousand lives are lost.

But in addition to the erection of lighthouses as warnings of danger, lifeboats are stationed on all the most dangerous parts of the coast. These boats are so built that they can venture out in almost any weather to the rescue of shipwrecked sailors. They are manned by hardy well-trained mariners. During the year 1879 the lifeboats rescued from wrecks, and vessels otherwise in danger, around the coast of the United Kingdom, no less than six hundred and thirty-seven persons; and this was done without the loss of a single life among the crews of the lifeboats themselves. Lifeboats have now been in use for more than fifty years, and during this time no less than twenty-seven thousand lives have been saved.

heav'-i-er
cur'-rent
traf'-fic
nu'-mer-ous
more-o'-ver
trav'-elled
an'-nu-al-ly
res'-cue
ad-di'-tion
sta'-tioned
un-ceas'-ing
vi'-o-lent
ab-rupt'-ly
con-sid'-er-ing
ĕ-spec'-i-al-ly
strewn

LESSON IX.

MOUNTAINS AND HILLS.—PART I.

ENGLAND is not a mountainous land; that is, its mountains do not compare with many gigantic and lofty ranges, such as may be seen in some parts of the world, where they rise to as much as five miles above the level of the sea. Yet there is not a single part of the country over which a line could be drawn from one coast to another without passing over some hills or mountain-ranges. Some of the mountains rise to a height of more than 3,000 feet, and very many are over 2,000 feet high.

From the extreme north to the extreme point at the south-west of the island, there is a range of high ground running like a "back-bone." And from the sides of this great range branches stretch out, somewhat as the rib-bones of the human body stand out from the back-bone. Hence these side ranges are sometimes called ribs.

The northern end of England is divided from Scotland, along a distance of more than 60 miles, by a chain of hills called the "Cheviots," the highest of them—a round-topped mountain, termed the Cheviot—being 2,668 feet above the level of the sea. From that lofty range, in Northumberland, to the Peak in Derbyshire, the "back-bone" stretches for 170 miles. This band of lofty hills is called the "Pennine Chain"—a name given to it by the Romans, who held possession of this country nearly 2,000 years ago. They gave to this, the leading chain of high-land in England, a name similar to that which they applied to a long chain of mountains in Italy—the *Apennines*. The word "*pen*," however, meaning a "height" or "summit," is British or Celtic, and it still remains in the names of some hills in the *Pen*nine Chain, as in *Pen*ygant, *Pen*dle, &c.

The Pennine Chain is not a single ridge, but a host of mountains and hills of different heights, standing on a high base. At the northern end, joining the Cheviots, it starts like a high bank; but as it runs southward it spreads wider and wider until its bleak back stretches forty miles across. What a wonderful company of mountains and hills may be pointed out in that grand range! Crossfell, Whernside, Penygant, and Ingleborough, each lifts its head between 2,000 and 3,000 feet into the clouds; and beneath are wondrous caverns, one of them measuring 60 yards long and 20 yards wide. In that cavern there is a grand cascade streaming from one of the walls, and falling a depth of 25 feet, to bury its waters beneath the shingle floor.

Not far from this group of lofty hills, which form part of the Pennine Chain, a turnpike road crosses the back of the range on the heavy waste called Holme Moss, at a height of 1,859 feet. And within a short distance there is a tunnel, 3 miles long, cut through the ridge for the Huddersfield Canal, but now used by a railway. The Pennine range divides counties; for in old times these hills were a formidable barrier, and people on one side were not likely to mix largely with those on the other, nor to have interests in common. There are three separate counties on the east side of the chain: Northumberland, Durham, and Yorkshire; and three on the west: Cumberland, Westmoreland, and Lancashire; into all of which the Pennine range throws its shadows.

The Cumbrian Mountains form a distinct group, although they branch out from the Pennine Chain. Their name—"Cumbrian"—tells us that they belong chiefly to the county of Cumberland, though many of them are found in the adjoining county of Westmoreland. Nearly a score of mountains of this group stand between 2,000 and 3,000 feet high, and one of them—the highest mountain in England—"Scaw Fell" (the central point of the system), in Cumberland, is 3,229 feet high. The chief feature of this region is found in the numerous lakes* of great beauty, which impart to its scenery a charm that can scarcely be surpassed by that of any other parts of Great Britain. The spurs or smaller hills stand out like the spokes of a wheel, or like the points of a star-fish, and stretch away for miles; many of those on the west, north-west, and south-west reaching nearly to the sea.

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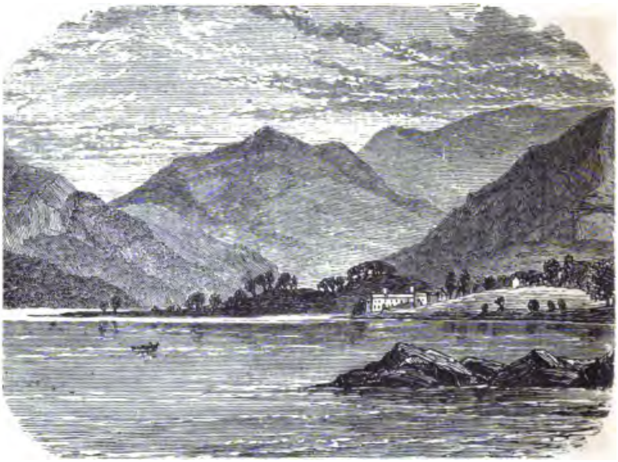
* The principal of these lakes are:—Windermere, Derwentwater, Coniston, and Ulleswater.

On the eastern side of the island, fringing the North Sea, there is a long belt of hills stretching along the whole coast of Yorkshire and Lincolnshire. The river Humber, on its way to the sea, cuts a gap in this range, and so divides it into two parts; of these the northern portion is called the "Yorkshire Wolds," and the southern the "Lincolnshire Wolds."



CUMBRIAN MOUNTAINS.—LAKE WINDERMERE.

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be-neath'
fea'-ture
chief'-ly
bleak
re'-gion
scĕn'-e-ry
nu'-mer-ous
spokes
scarce'-ly
sim'-i-lar
heav'-y
spurs
sur-passed'
ad-join'-ing
bar'-ri-ers
stretch

Cas-cade′, a waterfall, small in volume or quantity.

Shin′-gle, loose water-worn pebbles, such as are found on the sea-shore.

For′-mid-a-ble, sufficient to cause fear; dangerous.

Sys′-tem, a number of things standing together so as to make one whole.

SUMMARY.

The mountain systems in the northern counties of England are:—

1. The **Cheviot Hills**. *Chief height, Cheviot* (2,668 *feet*).

2. The **Pennine Chain**. *Chief heights, Cross-fell* (2,927 *feet*), *Whernside, Ingleborough, Peny-gant.*

3. The **Cumbrian Group**. *Chief heights, Scaw Fell* (3,229 *feet*), *the highest mountain in England, Skiddaw, Saddle-back.*

LESSON X.

MOUNTAINS AND HILLS.—PART II.

SOUTHWARDS from the Peak in Derbyshire—near the centre of England—the Valley of the Trent breaks the high band of land that forms the "back-bone;" and there are some other places at which the chain is broken, but the gaps are never very wide. The *Clent Hills* commence at the southern end of the plain, and stretch through a part of Worcestershire, at a height of 1,000 feet. The *Malvern Hills* then run on the borders of Worcestershire and Herefordshire; and the *Cotswold Hills* are in Gloucestershire. The greatest height in the Cotswold range is *Cleeve Hill*, near Cheltenham, 1,134 feet. The Cotswold Hills take their name from the ancient sheep *cots* formed on the *wolds* or hills.

We cannot travel far along this main central line through the country without coming in contact with either ranges or knuckles of high land. At almost every stage the chains of hills run in the direction we travel, but we now meet with a range that stretches straight across our path to a length of 25 miles, and at a height of about 1,100 feet. This chain, called the *Mendip Hills*, stands in the county of Somerset. The top of these hills forms a high flat, with a rapid slope on each side; but their wild and bare surface is broken by rugged glens. These are narrow valleys, like slits in the massive limestone rocks: one of them, called "Cheddar Cliffs," has steep walls, which measure a depth of 285 feet to the bottom. These glens are called by the people of the locality "combes;" and among them are many old caverns, anciently worked as ochre-pits, where abundance of the bones and teeth of elephants, oxen, the stag, bear, and fox are found in excellent condition.

Pursuing the central line further, we cross the western end of a range called the *Dorset Heights*, and find the remainder of the peninsula to be threaded all over with high land, called the *Devonian Range.* "Exmoor" is a wild *moor* in which the River *Exe* rises. It varies in height from 1,100 to 1,688 feet, the latter being the measurement of "Dunkerry Beacon." This moorland is desolate and bleak, being destitute of trees, but it forms a good sheep-pasture. "Dartmoor" is a wide *moor*, in which the river *Dart* rises. It extends far across the centre of the peninsula, and measures 22 miles from north to south, and 14 miles from east to west. There is scarcely any vegetation, and but few human dwellings are to be found on bleak and barren Dartmoor. The peaks consist of granite, the chief being "Yes Tor" (2,050 feet high), and "Cawsand Beacon." The remainder of the range is high and rugged, and stretches through Cornwall, terminating at Land's End.

On the western side of the island we see the large tract forming the division called Wales to be rich in mountains. There is one large system spreading

GARTH MOUNTAIN.—SOUTH WALES.

over the greater part of the country, termed the Cambrian Range.* "Cambria" is a name for

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* Remember the *Cumbrian* Group in *Cumber*land. All these words are connected with the word Cymry, the name applied by the Welsh to themselves. When the English invaded Britain, the Cymry found a refuge in the mountains of Cumberland and Wales. Hence the name has been specially connected with those districts.

Wales. You have been told that "Scaw Fell" was the highest peak in England, but there is a still higher one in North Wales. It is called "Snowdon;" its height from the sea is 3,580 feet, and the district of mountains which spreads around it is called "Snowdonia."

You will now have seen that there are *three* large mountain systems: the *Northern*, the *Devonian*, and the *Cambrian*. The *Northern* includes the Pennine Chain, stretching from the Cheviot Hills, at the north of England, to the Peak of Derbyshire, near the middle of the country; and also the Cumbrian Group, which forms the Lake District. The *Devonian* comprises all that range of high land which spreads through Devon and Cornwall, at the south-western end of the island. And the distance between these two great systems is nearly filled up by the Clent Hills, the Malvern Hills, the Mendip Hills, and the Cotswold Hills; thus forming, with only a few breaks, a "back-bone" of high land through the whole length of the country, measuring about 500 miles. The *Cambrian* system is the whole of the mountain land that spreads over Wales.

Besides these three *great* systems, there are many long chains of high land, that are not high enough to be termed "mountains;" they are "hills" that serve useful purposes—even more so, in some respects, than mountains do—for most of them form grazing lands for cattle and sheep. There is a long range of high land, with one end

SNOWDON.

towards the Devonian Range in the south-west, and the other at the eastern side of the island, almost touching the North Sea at the "Wash," which divides Norfolk from Lincolnshire. In this long band of about 200 miles there are four distinct ranges: the *Marlborough Hills*, the *Chiltern Hills*, the *Gog and Magog Hills*, and the *East Anglian Heights.* And there are other ranges along the south coast: the *Wealden Heights* and the *North* and *South Downs*, which have a broad valley between them.

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knuck′-les
thread′-ed
combes
grāz′-ing
pur-su′-ing
breaks
lo-cal′-i-ty
con-dĭ′-tion
cattle
ex′-cel-lent
vĕ-ge-ta′-tion
broad

O-chre, a kind of fine clay, mostly of a red or yellow colour.
Com-prīs′-es, includes, takes in.
Dĕ′-sol-ate, waste, almost a desert, with but few inhabitants, and but little vegetation.
Dĕ′-sti-tute, wanting.

SUMMARY.

The three great mountain systems of England and Wales are—

1. *The Northern System, including the Cheviot Hills, the Pennine Range, and the Cumbrian Group.*

2. *The Devonian Range, including the mountains of Dorset, Devon, and Cornwall. Chief height, Yes Tor* (2,050 *feet*).

3. *The Cambrian Range in Wales. Chief*

heights, Snowdon (3,580 *feet*), *Plinlimmon, and Cader Idris.**

Between the Northern and Devonian Systems there are—

1. *The Clent and Malvern Hills in Worcestershire.*
2. *The Cotswold Hills in Gloucestershire.*
3. *The Mendip Hills in Somersetshire.*

Other ranges of high land are—

1. *The Yorkshire and Lincolnshire Wolds.*
2. *The Marlborough Hills, Chiltern Hills, Gog and Magog Hills, and the East Anglian Heights.*
3. *The North and South Downs and the Wealden Heights.*

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* The latter two, however, are not the highest after Snowdon. Carnedd Llewellyn, overlooking Nant Francon, is 3,480 feet high, and Carnedd Dafydd not much less. But those named in the text are better known mountains.

LESSON XI.

PLAINS, TABLE-LANDS, AND VALLEYS.

THE whole of the surface of the country, except the portions described as mountains and hills, consists of Plains, Table-Lands, and Valleys. A Plain is not always exactly level; it may have slightly rising and falling land, but not high hills. A Table-Land is so called because it is supposed to be like a flat table—more or less level—but it may slope to some extent. A Valley is a hollow place between hills or mountains, whether they stand singly, in groups, or in ranges. Rivers usually run across Plains and Table-Lands in the direction in which they slope; and along the bottoms of valleys from the higher to the lower end. Some plains and valleys have other valleys within them; and one plain or valley may join another plain or valley without being separated by hills.

The *Plain of York*, or great North-Eastern Plain, is the largest level area in the country. Its shape is almost that of a long triangle, with the narrow part at the mouth of the Tweed, at the extreme north-eastern point of England, and the broad base across the shores of the Trent. The western side is flanked by the Cheviot Hills and the Pennine Chain, and the eastern side by the North Sea from the Tweed to the Tees, and from the Tees to the Wash by the Yorkshire and the Lincolnshire Wolds. The Plain measures 160 miles in length, is 30 miles broad across the middle, and 45 miles at the base, or southern end. The whole area slopes downward towards the sea. The northern part, from the Tweed to the Tees, slopes in the direction of the North Sea, and allows the rivers in that portion to fall into the ocean ; most of these have a very short course. The remainder of the Plain, which is hedged in by chains of hills on each side nearly all the way, does not slope entirely in one direction. Across that part where the ends of the Yorkshire Wolds and the Lincolnshire Heights have a deep gap between them, the land may be likened to a broad deep ditch—the lowest part of the Plain, towards which the land slopes downwards from both north and south. This feature has a peculiar bearing on the river system, for it is along this deep valley that nearly all the rivers between the Tees and the Wash find their way to the sea.

The locality of the *Cheshire Plain* is partially told by its own name—it covers the whole of Cheshire, and the larger portion of Lancashire. Like the Plain of York, its shape is almost that of a triangle. It lies on the west of the Pennine Chain, by which it is divided from the York Plain, and slopes in an opposite direction towards the Irish Sea. The Cheshire Plain is bounded by the Cumbrian Mountains on the north, the Pennine Chain on the east, the end of the range of Clent Hills on the south, the Snowdon Mountains at the north-west, and lies open to the Irish Sea, towards which it slopes downward and pours out the water from all its rivers. Between the Snowdon Mountains and the southern end of the Pennine Chain, about 2,500 acres of low-lying land have been drained and made fertile, as well as a large part of the marshy coast about the mouth of the Mersey. At present the Plain is graced with but few trees, although it contains a large district still bearing the name of De la Mere Forest (the Forest near the sea), on which 10,000 acres of wood once grew. The Plain measures across its southern end from 30 to 35 miles.

The *Valley of the Severn* is the Vale along which the upper part of the river Severn flows, and is about 15 miles wide at its broadest part, where the Cambrian range of mountains stands on the west and the Clent Hills on the east. There are many vales bearing local names within this great valley, whose northern end joins the Cheshire Plain.

From the east of the latter stretches the *Central Plain*—meaning a plain in the centre of England. This is a plateau, not exactly level, but relieved by rising ground in various places, the general height varying from 200 to 400 feet above the level of the sea. Still further eastward, a low district called the *Fens* spreads around the shores of the "Wash." The Fens once formed a swampy wilderness, being so level and low that the water which drained from the hills around could not fall away to the sea, nor could the floods frequently made by the ocean's inroads get back again. Here is the *Bedford Level,* mentioned in our journey round the coast—a "level" district drained by the Duke of "Bedford."

The *Valley of the Thames* is an avenue shaped like a fan, the broad part opening to the German Ocean, and the shank being where the North Downs (on the south) and the Wiltshire Hills join. The Chiltern Hills and the East Anglian Heights bound it on the north. This valley reaches from the German Ocean westward to within thirty miles of the Bristol Channel.

Along the southern end of the island there are three tracts of land, two of them having the character of plains, and one of a valley. *Salisbury Plain* is scarcely a "plain" in the strict sense, but a tract of hills and vales stretching over a space of 50 miles in length and 15 miles in breadth, its surface measuring about 200 square miles. This broad space is a root or centre from which spring the Cotswold and the Mendip Hills, and the long range known as the North Downs; the plain may be compared with the body of a star-fish, with these spurs or chains of hills for its arms. Although the surface is uneven, it is termed a "plain" for the reason that it is not broken by any *deep* valleys or *very high* hills; and the name of Salisbury is applied to it on account of its southern limit approaching within a few miles of that quaint old city.

Southward of Salisbury Plain, and divided from it by a part of the Wiltshire Hills, lies the *New Forest,* which measures about 30 miles square, and reaches to the "Solent" opposite the Isle of Wight. William the Conqueror, desirous of making a hunting-ground for his own royal use, laid waste 40 miles of country, destroyed whole villages, and left many thousands of people homeless, to secure this large tract of land on which to gratify his love for the chase. The name "New" was applied to the forest when it was first established, and has been retained to the present day, though it is now more than 800 years old.

The *Weald* is a valley about eight to ten miles wide, lying between the two ranges known as the North and South Downs, and joining *Romney Marsh.* The word *Weald* in old English means a forest, and the whole of this district was, in ancient times, a hunting-ground of the Saxon kings, and well stocked with swine and deer.

There are various other level spaces of more or less importance. Along the eastern side of the Yorkshire Wolds and Lincolnshire a long slip of low land borders the North Sea, and is known as *Holderness Plain.* North of the Cumbrian Mountains there is a low patch of land called the Cumbrian Plain, sloping down to the Solway

Firth. It is bounded by the Cumbrian Mountains, the Pennine Chain, and the end of the Cheviot Hills. In and near Wales, there are several valleys of great beauty, including the *Vale of Llangollen* and the *Vale of Clwyd.* Among the groups of hills eastward of the Bristol Channel, there are several large tracts of marsh land, in one of which—the Isle of Athelney,—Alfred the Great took refuge from the Danes when that sturdy

IN THE VALE OF LLANGOLLEN.

race overran the southern shores and drove Alfred from his throne.

fea'-ture
pla-teau'
pe-cu'-li-ar
par'-tial-ly
re-lieved'
es-tab'-lished
ap-proach'
dĕ-scribe'
cen'tre
ă'-ven-ue
de-sīr'-ous
quaint

Flanked, bordered, touched at the side.
Shank, a leg, a handle.
De-pres'-sion, a sinking, a sunken space.

SUMMARY.

The chief plains and valleys in England and Wales are—

1. **Plains.**—*The Plain of York, the Cheshire Plain, the Central Plain, Bedford Level, Salisbury Plain, New Forest, the Weald, and the Holderness Plain.*

2. **Valleys.**—*The Valleys of the Thames and the Severn, and the Vales of Llangollen and Clwyd.*

LESSON XII.

RIVER BASINS:—*THE TYNE, THE WEAR, AND THE TEES.*

On the coast at the north-east of England there is a stretch of sloping land about ninety miles long, beginning at the river Tweed, and reaching southward to the spot at which the high range of hills called the Yorkshire Wolds raise their northern end. Along the edge of the North Sea the land lies very low; but at the northern end the range of mountain land known as the Cheviot Hills starts at the distance of a few miles from the water's edge, and bends away from the sea till it gains the high range termed the Pennine Chain, which forms the "back-bone" of England, and runs southward parallel with the coast.

As the land slopes from the mountain range (between 2,000 and 3,000 feet) to the sea, all the rain that falls upon it, and the snows which fall and melt there, find their way downward to the eastern ocean.

The mountain range is not merely a straight ridge, but has spurs that shoot out for some distance into the plain; and between these spurs lie some of the wildest valleys in the country. Among the roots of these mountains, which are rich in trees, there is a large quantity of lead and iron found; and in the open plain, which is bare and bleak, a bed of iron and coal.

At the northern end of the plain the river *Tweed* opens to the sea, carrying away the waters on the northern side of the Cheviots. From the Cheviots to the southern end of the plain there are seven streams; but four of them—the *Alne*, the

ALNWICK CASTLE AND THE RIVER ALNE.

Coquet, the *Wansbeck*, and the *Blyth*—are very short in their course. The river system is chiefly confined to three fine streams—the Tyne, Wear, and Tees—which rise among the hills in the Pennine Chain, and run rapidly down the steep slopes, making waterfalls and lakes, thus adding great beauty to the district, till they reach the more even ground. Then they widen out, and wind through a zigzag course at a slower pace as they approach the sea.

The *Tyne* rises among the wild mountains of the Pennine Chain, where the heights are covered with snow for months together in the winter, even when none is to be seen in the lower districts. But it has another branch, which starts from a more northern point among the Cheviot Hills, and runs southward. These branches are called the *South Tyne* and the *North Tyne* until they flow together towards the sea, when the united streams take the name of the *Tyne*. This river does not wind about to any great extent, but runs nearly straight across the plain, so that its course measures only 80 miles in crossing a district about 70 miles wide. It receives the waters of many streamlets on both banks, and drains a district measuring 1,100 square miles. By the aid of all these tributaries the stream grows wide and deep enough to admit very large vessels at a distance of about 15 miles from the sea. It then becomes a grand watery highway, along which ships carry the coals, iron, grindstones, and the manufactured goods of Newcastle and Gateshead, and other towns that stand thickly together on its banks near the sea.

The Tyne is, and has been, famous for its fish. As far back as the reign of Henry I.—a period of nearly 800 years—it was celebrated for its supply of salmon; and large quantities may now be seen sporting about the mouth of the river in the summer time.

The *Wear* starts from a rugged and romantic district in the Pennine Chain, and races down a wild valley called Weardale (the dale in which the Wear runs), where lead-mines abound. It is not so straight as the Tyne, having to wind about in a zigzag course to pass round a projection of high land, on a portion of which the cathedral city of Durham stands. A few miles from the city of Durham there is a salt spring rising from a rock in the middle of the river. The Wear takes in several smaller streams, and at about twenty miles from its mouth it becomes navigable for small vessels. Nearer the sea it grows into an estuary of some importance. Along the banks, for the last five or six miles (including the port of Sunderland at the mouth of the river), there are numerous ship-building yards, and immense quays for the delivery of coals into ships. The stream measures about seventy-three miles in length, and receives the waters from an area of 460 square miles.

The *Tees*, the most southern river of this basin,

SHIPBUILDING IN SUNDERLAND.

rises at a spot near to the source of the Wear. It begins its course near the great mountain called Cross Fell, leaps over crags, sweeps along the wild valley known as Teesdale (the dale in which the Tees flows), and winds about for a distance of ninety-five miles. After draining an area of 744 square miles, it enters the North Sea at the base of the high land which begins the Yorkshire Wolds. In its approach towards the sea, where the land is flat, the river expands into a large bay several miles wide. The bay is slightly narrowed by a tongue of land called Seaton Snook, from which a bar of sand stretches across the stream. The estuary is a place of great safety for ships in distress, and is a busy outlet for the coal, the iron, and the manufactures of Stockton-on-Tees.

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va′-ry-ing
zig′-zag
beau′-ty
con-fined′
re-ceives′
mea′-sure
trib′-u-ta-ry
pro-jec′-tion
sal′-mon
quan′-ti-ty
build′-ing
man-u-fac′-ture

Cĕ′-le-brāt-ed, noted, famed, well known.
Nav′-ig-a-ble, deep enough for the passage of ships.
Es′-tu-a-ry, the mouth of a tidal river.
Quay, a bank formed on the side of a river for the purpose of loading and unloading ships.
Ro-man′-tic, strange, fanciful.
Stream′-let, a little stream.

SUMMARY.

The **Tweed** *is mainly a Scotch river. Berwick is its chief town.*

The **Tyne** (80 *miles*) *rises in the Pennine Chain. Chief Towns—Newcastle, Gateshead, North and South Shields.*

The **Wear** *(73 miles) also rises in the Pennine Chain. Chief Town—Sunderland.*

The **Tees** *(95 miles) rises near Cross Fell. Chief Town—Stockton.*

LESSON XIII.

THE OUSE AND TRENT BASIN.

THE basin of the Ouse and Trent is a hollow space shaped somewhat like a mussel-shell with its broadside propped up slightly. Around the edge of the basin there is a band of hills and mountains, except at that part which corresponds with the shank or hinge of the mussel-shell; and at that place there is a deep and broad valley opening to the North Sea.

The hollow consists of a large portion of the Plain of York on the north and the Central Plain on the south. These two plains are "tipped," so as to slope towards each other; and the lower ends, where they join together, form a low marsh, measuring about 10,000 acres, where the waters that race down the sides of the basin meet in a great swamp, to be carried eastward to the sea. The border land of the hollow space is highest on the western side, which is farthest from the ocean, for it consists of the great Pennine Chain, or "back-bone" of England, with its ridge of many crowns standing nearly 3,000 feet above the level of the sea. The eastern side is bounded by the two long ranges of hills called the Yorkshire Wolds and the Lincolnshire Wolds, which are broad-backed, measuring from twenty to thirty miles across, and standing from 400 to 600 feet high. It is in the deep vale that lies between the approaching ends of these wolds that an opening is made to the North Sea. The two ends of the hollow space are fringed by high land.

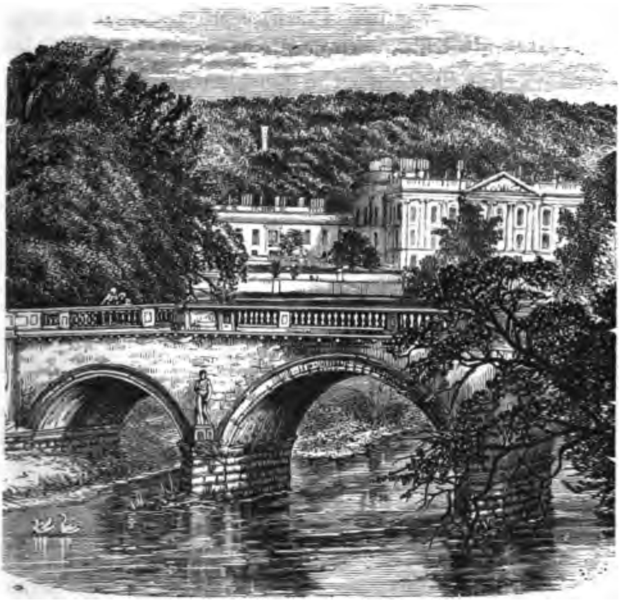
Although there are two plains within the basin, they do not stretch like level floors to the very edge of the hilly barriers ; for mountain ranges do not stand upright like a wall, but send out sloping buttresses from their sides into the plain. And the more lofty the mountains are, the farther do their buttresses extend. In this respect they are like trees, which push out their roots for support to a greater distance in proportion as their crowns rise higher and spread wider. For this reason, while the lofty mountains of the Pennine Chain stretch forth very long spurs far into the Plain of York, the Yorkshire Moors, which skirt the eastern side of the basin, and divide it from the sea, have shorter spurs in proportion to their lower elevation. Higher mountains tell of longer spurs, and of course of longer valleys between them.

The bleak and dreary heights of Crossfell, Whernside, Ingleborough, Bowfell, and the other mountains of the Pennine Chain, whose high tops catch the flying clouds and break them into raindrops, pour the moisture down their dark sides into the valleys that lie between their ribs. Each of these vales becomes the bed of a stream which rolls along, seeking still lower channels, till it reaches the great plain. Here it pours its waters into the side of a still deeper valley, that runs down the centre of the plain and forms the bed of a great river called the *Ouse.*

The various dales take their names from the streams that flow along them. At the northern end of this series of spurs, the river Swale* travels at a swift pace from its birthplace in the lofty Shunnor Fell, at a height of more than 2,000 feet from the level of the sea. After running for a distance of 68 miles, it is joined by another stream called the Ure, and after this junction the united rivers take the name of the Ouse. There is yet a distance of 80 miles to run before the Ouse discharges its waters; and in its course it has to receive five more rivers from the Pennine Chain on its right bank, and one from the Yorkshire moors on the left bank. The river Nid flows down a charming dale, to which it gives the name of Niddesdale; the Wharfe, after skipping among the crags and heather of its early course, rolls along a vale called Wharfdale; the Aire issues from a grand lake known as Malham Tarn, runs for a mile underground, shoots out at the foot of a rock 286 feet high, and races down the valley to which

* Swalew is the Saxon word for "swift."

it gives the name of Airedale. All these pretty dales, studded with busy towns and villages, open into the great valley of the Ouse. This river receives a few other tributaries and then joins all these waters to those of the Trent, which brings its own and other streams northward from the Central Plain. Round the junction of these rivers is the expanse of swampy land before mentioned. So spongy is this marsh that it will



RIVER DERWENT, AND CHATSWORTH HOUSE.

hardly bear the weight of a sheep, and scarcely grows a bush or a tree on its wide surface.

The whole of the rivers that flow in this great basin *must* find their way to this valley, for it is the *lowest* part of the hollow space. The Ouse drains the Yorkshire Plain, and the Trent the Central Plain. Then the collected waters of all the streams that flow into the marsh roll out along the valley that divides the ends of the hilly ranges—the Yorkshire and Lincolnshire wolds—and the names of "Trent" and "Ouse" give place to that of "Humber" during the last few miles before the river opens into the ocean.

propped	**junc'-tion**	**fringed**	**vil'-lage**
tipped	**chan'-nel**	**moist'-ure**	**val'-leys**

But'-tress, a side support, a prop.

Pro-por'-tion, portion for portion.

E-le-va'-tion, height.

Stud'-ded, dotted over.

Wold, a name given to some hilly tracts.

SUMMARY.

The **Humber** *is formed by the junction of the Yorkshire Ouse and the Trent.*

The **Ouse** *drains the Yorkshire plain, and the* **Trent** *the Central plain.*

The **Ouse** *is formed by the junction of the Swale and the Ure. The Derwent is a tributary on the left bank, and the Nidd, Wharfe, Aire, and Don are tributaries on the right bank.*

The Derwent and Dove are tributaries of the **Trent.**

Chief Towns.—*York (on the Ouse), Leeds (on the Aire), Wakefield (on the Calder, tributary of the Aire), Sheffield (on the Don), Nottingham and Burton (on the Trent), Derby (on the Derwent), and Hull (on the Humber).*

LESSON XIV.

THE WASH AND THE THAMES BASINS.

THE *Wash* is the great gap, 15 miles wide, which the sea has "washed" out between the ends of two long chains of hills—the one on the northern side being the Lincolnshire Wolds, and the one on the southern side the East Anglian Heights. From the end of this great arch of the sea, which stretches 20 miles into the shore, the low tract of land that forms the south end of the Central Plain spreads out like a fan. And this is the Wash basin whose waters are drained away by many small streams and four rivers—the Witham, 89 miles long; the Nen, 99 miles; the Welland, 72 miles; and the Great Ouse, 156 miles in length. These four rivers drain an area of nearly 6,000 square miles.

Three hundred years ago a large portion of this flat region was a great swamp, for the sea often washed over the low banks and spread for many miles. The ground was so flat that the water could not roll back again. High banks were then made to keep out the sea, and windmills built to pump out the water from the land. Hundreds of thousands of acres of ground were thus cleared, and turned into farms. Steam-engines are now used to pump into the rivers the rain-water which falls on the land, and the rivers carry it into the Wash.

FIRST BRIDGE OVER THE THAMES.

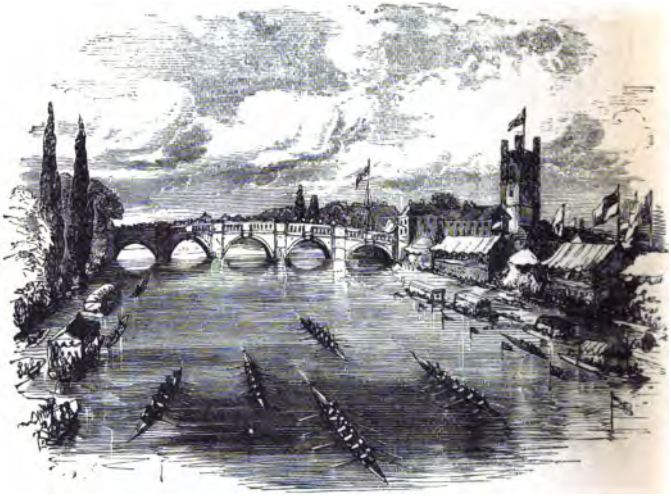
The river *Thames* first peeps out of a lonely dell in the shadow of a cluster of trees on the eastern slope of the Cotswold Hills. It winds about like the body of a moving snake, and runs a course of 215 miles in a valley which stretches 136 miles almost in a straight line. It receives the streams that draw away the waters of a hollow area of 6,160 miles.

On the eastern side of the range called the Cotswold Hills there are three streams issuing from the slope, several miles apart. These are the Thames, the Windrush, and the Evenlode, all of which, after running for some miles, roll together in one stream, called the Isis, deep enough to bear barges. These united streams pass by the town of Oxford. Afterwards they receive the Thame, which runs along the foot of the Chiltern Hills, and the fine river Thames then glides through a valley between the ends of the Chiltern Hills and the Marlborough Downs.

OXFORD.

The streams that flow down the many vales to reach the Thames have each a basin of their own: thus there are smaller valleys within a larger valley, and lesser basins within a greater one.

The river Ock brings waters on the right bank from the vale of the White Horse, in which hollow there is the figure of a great white horse in a galloping position cut in the brow of a chalk hill, and covering nearly an acre of ground.



THE THAMES AT HENLEY.

The Thames takes in many streams on both sides, that appear like the side veins joining the centre vein of a large leaf. It flows quietly past the royal residence—Windsor Castle—and the plain of Runnymede, where King John was forced by his barons about 660 years ago to sign *Magna Charta.* A few miles lower down the stream, at Teddington, it ceases to be used merely for pleasure-boats and barges, and can bear larger vessels; for here is the farthest point reached twice a day by the tide which flows from the sea.

After a further course of 18 miles, the river runs through the middle of the metropolis; and washes the Houses of Parliament on the left bank, and Lambeth Palace on the right. It passes close by the great cathedral of St. Paul, through London Bridge, past the Tower of London, and the Docks with their forest of masts. After passing Greenwich, with its park and Royal Observatory, and Woolwich Arsenal, where the weapons of war are chiefly made and stored, it flows on till it

WINDSOR CASTLE.

receives the waters of the Medway on its right bank, and then mingles with the sea.

The basin in which all the rivers run and carry their waters to the Thames stretches from the German Ocean to within 30 miles of another great opening to the sea on the western side of the island.

THE THAMES AT CHELSEA BRIDGE.

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en'-gines
po-sĭ'-tion
clus'-ter
sev'-er-al
is'-su-ing
veins
gal'-lop-ing
rĕ'-sid-ence

Mag'-na-Char'-ta, the great charter, obtained from King John by the barons of England, A.D. 1215. In this charter of freedom the rights and liberties of the people were fully secured.

Roy'-al Ob-serv'-a-to-ry, the chief observatory of Great Britain. It contains many kinds of instruments for seeing and noting facts about the heavenly bodies (sun, moon, stars, comets, &c.).

SUMMARY.

The chief rivers which flow into the Wash are the Witham, Welland, Nen, and Great Ouse.

The **Thames** *(215 miles) rises in the Cotswold Hills in Gloucestershire, and flows eastward into the German Ocean.*

Tributaries *of the Thames.—Left Bank—Cherwell, Thame, Colne, Lee. Right Bank—Kennet, Wey, Mole, Medway.*

Towns *on the Thames.—Oxford, Reading, Windsor, London, Greenwich, Woolwich, Gravesend.*

LESSON XV.

RIVER BASINS:—*THE ENGLISH, BRISTOL, AND ST. GEORGE'S CHANNELS, AND THE IRISH SEA BASINS.*

THE edge of land that skirts the south coast, or the *English Channel,* measures about 300 miles in length. There are ridges of high land running in the same direction at distances of from 10 to 50 miles from the water's edge, thus leaving but a narrow strip across which the streams run from the hills down to the sea. The chief rivers are nine in number, and they vary in their winding courses from 35 to 70 miles in length. Although the whole area is well watered the streams are too short to collect much water, as amongst them they drain very little more than

3,600 square miles of ground. Besides being short, their beds are rather steep, so that ships cannot reach far up the streams. Towards the eastern end of the strip, the *Ouse* and the *Arun* flow from the valley of the Weald at the back of the South Downs, and find their way through hollow places in that range. The streams that enter the English Channel at the western end of the strip, rise in mountain land, and flow through a district of great beauty. These are the *Avon*, the *Exe*, the *Dart*, and the *Tamar*; one of which—the Exe—has its birth within five miles of the opposite coast, thus nearly cutting off as an island the long peninsula made by the Devonian Range of Mountains.

The watershed or ridge which nearly surrounds the basin of the *Bristol Channel* is shaped almost like a horse-shoe. These heights do not form a single chain, but are broken into different ranges.

The Bristol Channel is so named because it is a broad valley or *channel*, by which Bristol is reached from the sea. The ranges of high land that bound the channel are—Dartmoor, Exmoor, the Mendip Hills, the Cotswold Hills, the Malvern Hills, and the mountain range of South Wales. Between these ranges rivers flow from the plains behind, seeking the low avenues through which they find their way to the channel.

The chief river is the one called the *Severn*, which rises in Plinlimmon, on the eastern side of the Cambrian range, near to that part of the sea called

St. George's Channel. It turns across the southern end of the Cheshire Plain, and flows in the deep valley that lies between the ranges called the Malvern and Cotswold Hills, to enter the Bristol Channel, after running a course of 215 miles.

THE RIVER SEVERN.

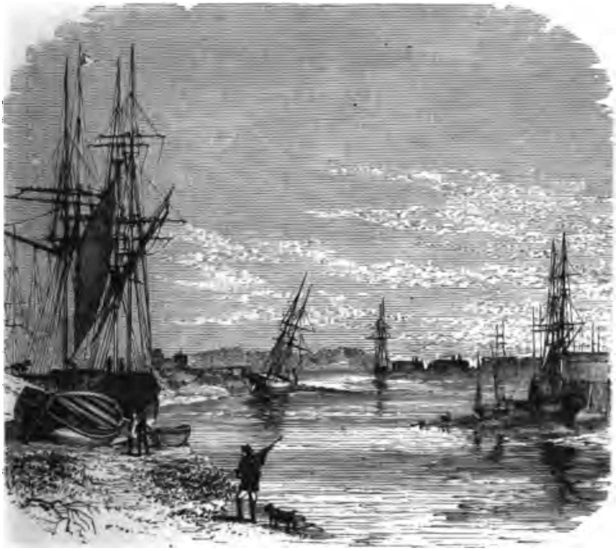
Between these ranges of hills the Severn is joined by the river *Teme,* which runs from the Cambrian Mountains on the right bank, and the *Upper Avon,* which comes from the Central Plain on the left bank.

The river *Wye,* which rises in the Cambrian range, runs through a rocky and narrow channel in the early part of its course between dreary mountains covered with mosses and peat, and in its lower course through a district of charming scenery,

THE RIVER WYE, AND CHEPSTOW CASTLE.

and then joins the open channel on the right bank. Still farther, towards the Atlantic, the *Usk*, after running a course of 70 miles, pours into the channel the waters gathered from a large part of South

Wales. On the left bank, the *Lower Avon* brings the drainage from the hollow land between the Cotswold and the Mendip Hills, and empties its waters near the port and city of Bristol. The Severn Basin includes the Vales of Worcester, Gloucester, and Berkeley, and drains 4,500 miles of ground out of 8,800 belonging to the Bristol Channel.



THE RIVER USK.

The remainder of the western coast consists of two parts—the one fringing the *St. George's Channel*, and the other skirting the *Irish Sea.* The portion along the former is a very narrow strip, forming a sloping shelf from the Cambrian Range and the Snowdon group of mountains; and the numerous streams that drain into the sea are very short in their course, the longest—that called the *Teify*, which runs along the foot of the Cambrians —being only 70 miles long.

OUTLET OF BALA LAKE.

Into the *Irish Sea*, at the broad bend made by the sea in the low shores between the Snowdon and Cumbrian groups of mountains, four important rivers bring the waters of the great Cheshire Plain.

These are the *Dee*, the *Mersey*, the *Ribble*, and the *Lune*.

SANDS OF DEE.

The *Dee* is a Welsh river, flowing out of Lake Bala—a large lake which collects the waters from many mountain streams in Snowdonia. In the first ten miles of its course this rapid river descends from the mountain table-land of North Wales, a depth of 300 feet, although there are no waterfalls. It then makes a large curve through the Cheshire Plain, and becomes a sort of muddy lake as it reaches the sea, on account of the low sandy waste over which it spreads, the mouth being about six miles wide. This stream is 93 miles long, and drains an area of 850 square miles.

The *Mersey* is a fine river, which has a noble estuary, 3 miles wide, forming a harbour for vessels of the largest size. It has various sources in Holme Moss and Clough Moss, on the heights of the Pennine Chain. It has a slow winding course of 68 miles in length. On the right bank it receives the *Tame* and the *Irwell;* and on the left bank, at the head of the estuary, it is joined by the *Weaver*, which flows through the Cheshire Plain. The Mersey drains an area of 1,706 square miles, and, next to the Thames, is the greatest highway for ships in all England.

The *Ribble*, which rises in the Pennine Chain, near to the mountain known as Whernside, gives the name of Ribblesdale to the dale in which it flows, and has a low sandy marsh about its estuary. In its course of 60 miles it drains 750 square miles of ground. The *Lune* has its birth on Bowfell, and gives the name of Lonsdale (for Lunesdale) to the charming valley through which it runs a course of 53 miles, bearing away the waters of a basin measuring 430 square miles.

The lake district—comprising the various hollows that collect the waters of the Cumbrian mountains—pours much of its drainage into the river *Derwent,* which finds an outlet along a deep valley between two ranges of hills in the northern part of the group. Ships, however, cannot reach higher than a mile from the mouth of the river. The stream is 35 miles long, and it drains 260 square miles of ground.

The most northern river on this coast is the *Eden,* which rises in the Pennine Chain, and flows northward along the foot of the range, between heights of romantic form and wild beauty, and discharges into Solway Firth the waters collected in an area of 995 square miles of rugged land.

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op′-pos-ite
chan′-nel
gă′-thered
emp′-ties
drear′-y
de-scends′
scēn′-e-ry
fring′-ing
curve
com-prīs′-ing
drain′-age
group

SUMMARY.

The chief rivers on the south coast are *the Ouse, Arun, Avon, Exe, Dart, and Tamar.*

The **Severn** *rises in Plinlimmon, and flows into the Bristol Channel.*

Tributaries *of the Severn.—Right bank—Terne, Wye, Usk. Left Bank—Upper and Lower Avon.*

Towns.—*Shrewsbury, Worcester, Gloucester, Bath, and Bristol (on the Lower Avon), Newport (on the Usk).*

The rivers flowing into the Irish Sea are *the Dee, Mersey, Ribble, and Lune.*

Towns.—*Chester (on the Dee), Liverpool and Birkenhead (on the Mersey), Preston (on the Ribble), Lancaster (on the Lune).*

The Eden flows into the Solway Firth.

LESSON XVI.

CLIMATE.

THERE is a difference between "weather" and "climate." When we speak of the weather, we mean the state of the air and sky at any particular time. Thus it may be dry one day and wet the next; cold one week and warm another. In England the weather is very variable. But when we speak of the climate of a country, we mean the state of the air or sky from one year's end to another. It may be liable to great changes of weather in the course of the year. But very similar changes occur every year; and thus the general *climate* of a country remains the same for centuries, or for thousands of years. It is not fixed for ever; for it can be shown that England had a very different climate in ages long gone by. But the changes of climate are so slow that they are not noticed in many generations.

In some lands snow and ice remain for many months in the year, in others they never melt away. There are countries also where frost is unknown, and some in which rain scarcely ever falls; and still others where a shower does not come to bless the earth for eight or nine months, while during the rest of the year not a day passes without rain. The people in some parts of the world suffer intense heat in summer, and very bitter cold in winter; or, perhaps, they endure sudden changes from warm and bright and even sultry weather to almost icy winter in a single day.

England is less exposed to these extremes than most other countries in the same latitude. The change from summer to winter in this country is not so great as it is in many lands. We are neither so hot in the summer nor so cold in the winter. And there is a simple reason for this.

There are hot and cold streams of water running for thousands of miles through parts of the ocean without mixing with the general waters of the sea, just as if they were rivers flowing between banks. Some of these streams are hundreds of miles wide. One of these, called the Gulf Stream, because it turns eastward from a large *gulf* between the two American continents, carries a broad band of warm water into the north-eastern Atlantic.

The waters of the ocean being thus kept moving, the warmer currents from near the Equator mix with the colder waters from the North Pole, and so the temperature of the water is more equable than that of the land all the year round. That is, the water is warmer in winter and cooler in summer than the land.

Now the wind blows from the south-west, that is, from across the Atlantic Ocean, for about three-fourths of the year; and these winds temper the biting frosts of the winter, and soften the parching heat of the summer.

Again, the warm south-west winds come to us laden with moisture from the ocean, and these striking on the cold hills and mountain sides, or meeting with the colder air above, become chilled, and send down their moisture in the form of rain, bringing greenness and gladness everywhere.

As the clouds strike the hills and mountains on the west coast of the island first, much of their moisture is deposited before they reach the eastern side; hence much more rain falls annually on the west than on the east side of England.

During about a quarter of the year the wind blows sometimes from the south, at others from the east or from the north. You know how often it is said that "when the north wind doth blow, we shall have snow;" but did you ever ask why the blasts from the north should bring us snow? It is just because the northern part of this great globe is a region of cold and ice, and frost and snow. The air is laden with frozen moisture, and when the wind comes sweeping along from the bleak and dreary north, it carries cold air and sometimes snow in its chilly arms. And the east wind comes from a colder part than our own land, from Russia —where the cold in winter is intense—and across Germany, and over but a narrow strip of sea. For these reasons—because it sweeps over a cold land, and has but little time to catch any vapour that may rise from the cold German Ocean—the east wind is mostly both cool and dry. This is another reason why the eastern side of England has a much smaller amount of rain than the west.

The south winds are warm and soft, and are less charged with moisture than those from the south-west. There is less sea south of the island, for the sunny land of France lies but little more than a score miles away. And the winds that travel across that warm country bring rain-clouds only when they are floating thickly over France, or when the fogs abound over the English Channel.

Thus we see that the climate is not the same in all parts of our island ; and this fact makes a difference to the business carried on in various districts. Because the eastern side of England is dry, farmers grow more corn than grass, for corn does not thrive with a large amount of rain, and grass will not grow well without it. And because the western side is moist, farmers grow grass and feed cattle.

In the heat of summer some people who are weak and require bracing air, and also many bent on pleasure, seek the towns of Scarborough, Yarmouth, Ramsgate, and Margate, and other places on the east coast where the breezes are keen and fresh. And in the colder season, people who have weak lungs and chests visit in large numbers the Isle of Wight, Brighton, Hastings, Torquay, Bath, and other places south and west, to escape the keen winds of the east, which prevail in the spring even more than in winter.

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weath'-er
li'-a-ble
dif'-fer-ence
va'-ri-a-ble
ex-tremes'
bus'-i-ness
cur'-rents
brăc'-ing

Lat'-i-tude, width; *i.e.* the width of the belt separating a place from the Equator. When we speak of places being in the same latitude, we mean the same distance north or south of the Equator, although perhaps on the other side of the globe.

Tem'-per-a-ture, the degree of heat or cold.

E'-qua-ble, even, not liable to much change.

De-pos'-it-ed, thrown down.

Tem'-per, to moderate, soften.

Parch'-ing, scorching, drying.

Pre-vail', surpass in strength, to have more power.

SUMMARY.

By **Weather** *we mean the state of the sky and air at any particular time.*

By **Climate** *we mean the state of the air or sky from one year's end to another.*

The Climate of England is temperate. South-west winds blow for nearly three-fourths of the year, and bring moisture from the Atlantic Ocean.

More rain falls on the west than the east coast of England.

Differences of Climate have an effect on business. Thus, where there is less rain corn is best grown, and grass where there is more rain.

LESSON XVII.

INDUSTRIES:—*AGRICULTURE.*

THE total area of England and Wales is little more than 37,000,000 acres, of which three-fourths consist of farms, and gardens, and woods. The other fourth is chiefly waste or uncultivated land.

The cultivated land may be roughly classed as arable—that is under the plough or spade—and pasture or grass land. Of the arable land about 8,000,000 of acres are used to grow corn—viz. wheat, barley, and oats—and also beans and peas. Green crops, such as turnips, mangolds, and potatoes, occupy 3,000,000 acres; clover and such-like fodder for cattle, 3,000,000 more; vegetables, 38,000 acres; and hops, 70,000 acres. Many thousand acres are allowed every year to be fallow, that is without any crops. But this is a practice which is falling into disuse as the art of farming improves. The pasture land occupies about 12,000,000 acres, besides the scanty crops of grass which grow on the sides of the mountains and hills.

If a line be drawn from north to south through the middle of the island, the greater portion of the land on the eastern side consists of arable land, whilst the larger part of the western half is pasture or grazing land. The deeper soil and the hotter and drier weather of the eastern counties are more suitable for the growth of corn; whilst the moister climate of the western counties favours the growth of grass.

The land is not of equal value all over the country. Although grass and corn and root crops will grow to some extent in any district, the soil in some parts is much more fertile and produces much larger crops than in others.

The chief crop is *wheat*, but the quantity of land under wheat cultivation varies very much from year to year. The average yield is about 30 bushels per acre.

The chief wheat-growing counties are Lincolnshire, Yorkshire, Essex, Norfolk, Suffolk, Cambridgeshire, Kent, and Hampshire.

Barley is grown chiefly in the eastern counties, and in Kent, Hampshire, and Wiltshire.

Root crops flourish chiefly in Hampshire, Wiltshire, Essex, and Shropshire. *Potatoes* are grown generally, but the lowlands of Yorkshire, Cornwall, and Lincolnshire are noted localities for the growth of this important vegetable. Cornwall is also noted for its *brocoli* and *cauliflower*.

Hops thrive only on a narrow band of land stretching across Kent, Surrey, and Sussex, and on some patches in the counties of Worcestershire and Herefordshire.

The counties of Hereford, Devon, and Somerset produce the best crops of *apples*. *Hemp* is grown to some extent in Suffolk and Norfolk, and *flax* in Yorkshire.

Cheshire, Gloucestershire, and Staffordshire are the chief *dairy farming* counties.

On lands which are not farmed, the kinds of plants that grow wild depend on the nature of the soil, the climate, and the position. On poor gravel, gorse and broom abound; on high peat lands, short heath will grow; in marshes, and on soil with damp clay below it, rushes, sedges, and coarse grass cover the ground.

There are about 2¼ million horses, and 2½ million* pigs in the country,—so that the swine do not much exceed the horses in numbers. There are also about 5½ million head of cattle, or about five beasts to every two horses. The sheep number 29 millions, being about five to each head of cattle, or thirteen to each horse. But these beasts and sheep and pigs, and the corn and other crops grown at home, do not supply all our needs. We buy as much corn from other lands as we grow in this country; and we purchase cattle and sheep and pigs alive, besides hams and bacon, which, with the corn, cost about £14 a year for each family in the land.†

The people who farm the land and grow the cattle and sheep and pigs cannot consume all the produce. They send the greater part to the markets of great towns to be sold. London is the chief market, as it contains more people than any other district. There is a market for the sale of corn and cattle in each large town, to which the farmers go from the rural districts many miles around. At these markets ploughs and harrows may be purchased, also engines for thrashing corn, machines for cutting turnips and sowing seeds, and for all the work done on farms. Most of these agricultural machines are made at Bedford, Grantham, Leeds, or Ipswich.

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* See lesson on "Imports and Exports," page 144.

† It will of course be borne in mind that these are round numbers, and that the exact numbers vary slightly from year to year. But the statistics here given have been corrected up to the latest date (1880), and may be accepted as substantially correct for many years to come.

Fifty years ago about twenty persons in each hundred of the people of England were engaged in the work of farming; now not more than ten in a hundred are so employed. This change is not due to a smaller quantity of land being worked, for during the last thirty-five years more than 600,000 acres of waste land have been made fertile. But, as mines have been opened and new trades founded, while wise laws have favoured freedom of trade, many persons have left the farming villages and gone to live in mining districts and large towns where they can earn higher wages.

These trades have enabled many people to become rich, who have bought large estates which they keep chiefly for pleasure. About one person in every hundred owns land to the extent of more than one acre—that is equal to about one family in every score, or about 320,000 persons. About

1,200 persons own estates of at least 16,000 acres, while some have very much larger ones.

The large owners do not work the land, but let it out in farms of greater or less size, and charge a yearly rent for them. The farmers, or tenants, who pay rent for the land by which they live, number six times the owners of the soil; and they farm on an average about 56 acres each—some more, others less. During the last twenty years the rents have risen by one-fifth of their former rate; and the farming land of England and Wales is now worth more than £50,000,000 a year.

cul′-ti-vate	**ar′-a-ble**	**flour′-ish**	**thrash′-ing**
lo-cal′-i-ties	**suit′-a-ble**	**chief′-ly**	**ma-chines′**
pur′-chase	**a-gri-cul′-tur-al**	**ve′-get-a-ble**	**dis′-trict**

SUMMARY.

The chief **Wheat** growing counties are—

Lincolnshire, Yorkshire, Essex, Norfolk, Suffolk, Cambridgeshire, Kent, and Hampshire.

Barley *is grown chiefly in Norfolk, Suffolk, Kent, Hampshire, and Wiltshire.*

Root Crops *flourish chiefly in Hampshire, Wiltshire, Essex, and Shropshire.*

Hops *are grown in Kent, Sussex, Surrey, Worcestershire, and Herefordshire.*

Cheshire, Gloucestershire, and Staffordshire are the chief **Dairy Farming** *counties.*

Agricultural Machines *are made at Bedford, Grantham, Leeds, and Ipswich.*

LESSON XVIII.

INDUSTRIES:—*MINING.*

OUR country is rich in treasures which lie buried in the ground. Some of these are mixed with the soil we tread upon; others are deep down in the bowels of the earth. Clay and sand, lime and stone, and sometimes slate, lie near the surface. The pits dug in the ground in raising these things are called "quarries." Coal and Iron, Gold and Silver and Lead, Copper and Tin, Zinc and Salt, are so deep in the ground that they cannot be dug out from above. Men bore holes down into the earth to find where these treasures lie spread out in layers or slices, perhaps some miles in width, and then work them out, making great tunnels or caverns under our feet. These hollow places are called "mines;" and the many kinds of stuff taken out of them are known as "*minerals.*"

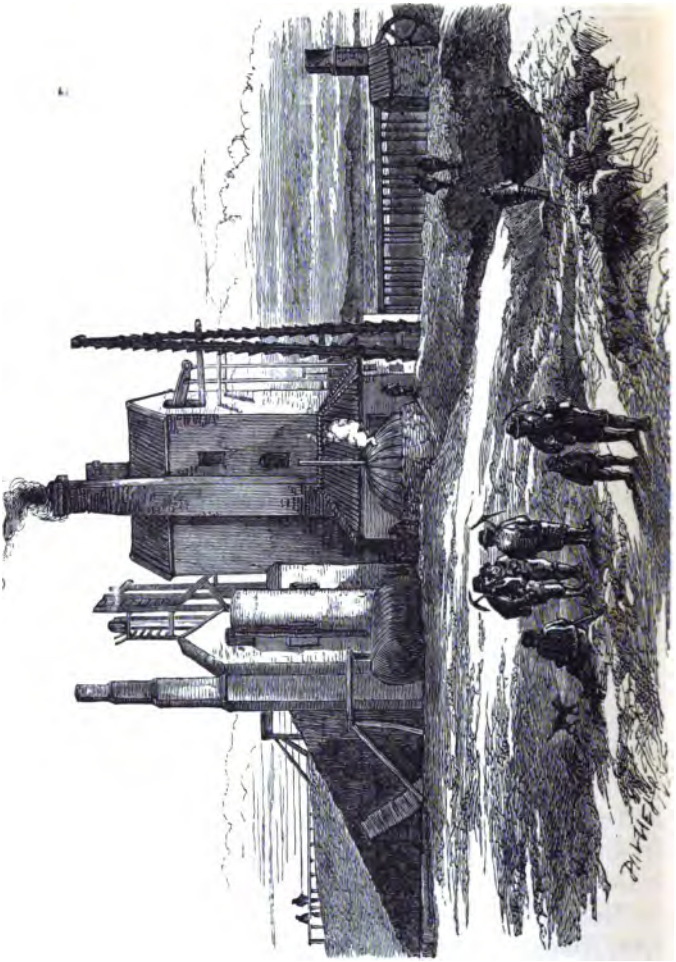
It is a curious fact that while clay or sand or lime may be dug in many parts of the country, coal and the minerals from which we obtain the metals are not found in any of the southern or south-eastern counties. If a line be drawn from the river Humber, on the edge of the North Sea, to Portland Isle, on the edge of the English

Channel, it will be found that east and south of that line scarcely a single mine exists, while to the north and west of the line the country has a network of mines beneath. Some of these pits are very far down in the ground; the deepest is nearly a mile below the surface of the earth.

Greatest of the products of mines is *Coal*, which lies in beds varying from one inch to forty feet in thickness, and spreads for many miles in width. This black and shiny stuff is the remains of great forests that once stood above the level of the sea.

There are fourteen important coal-fields, besides many small ones, spread about the country in valleys and plains, from the extreme north, on both sides of the Pennine Chain, as far south-west as the Bristol Channel. These coal-fields extend under about one-twentieth part of the land; and those that lie on the sea-coast are worked even under the bed of the ocean. The coal-mines—sometimes called "collieries"—number more than three thousand, and employ nearly 300,000 men and boys, women and girls. The latter are not now allowed to work *within* the pit, as they did some years ago, but only outside in screening and sorting and sifting the coals. The work of mining is attended with much danger, more than a thousand lives being lost every year.

The larger fields are—1st, the great one called the Newcastle coal-field, on the east of the Pennine Chain, stretching from the river Coquet in



GENERAL VIEW OF COLLIERY WORKS AT THE SURFACE.

Northumberland, southward to the Tees; 2nd, the

Leeds and Nottingham coal-field, stretching from Leeds and Bradford to Nottingham, including the southern end of Yorkshire, and portions of the counties of Nottingham and Derby; 3rd, that of Lancashire and Cheshire, on the Cheshire Plain; 4th, that of North Wales; 5th, the large one of North Staffordshire; 6th, that of South Stafford; 7th, the compact basin of South Wales, which contains at least one-third of all the coal in the country; and 8th, the most southern one, the Forest of Dean, at the mouth of the Severn. The remaining fields are small in extent.

Coal, which we now prize so much, came very slowly into general use in England. It was not largely burned in London 500 years ago, although it had been used in this country in the ninth century. Even the Romans must have known something of it, for coal cinders have been found among some of their ruined buildings. Coal was so much disliked by people in private life, that Edward I. and Queen Elizabeth both forbade its use in London while Parliament was sitting. And little more than 200 years ago some of the people in London begged Parliament to prevent coal being burned, on account of the bad smell arising.

Early in the present century there were not more than ten million tons of coals raised in a single year in England and Wales. Now we get about 120 million tons yearly, worth £43,000,000—or twelve times as much as was raised eighty years ago. It is thought that more than 146,000 millions of tons of these "black diamonds"* have yet to be dug out of the ground in this country. The coal obtained each year would—if used in the fires for steam-engines—do the work of 7,000,000 horses—that is more than twice as many horses as we have in the land—or of 49,000,000 strong men. And if the best kinds of boilers and engines were always used, these coals would do twice as much work as they do now. Fifty years ago most of the mills and machines were driven by water-power. Now that steam-engines are in use, coal does thirteen times as much work as the rivers do.

More than a quarter of the coal obtained is used in the manufacture of iron. Another fourth part is made to produce steam-power in mills, factories, and railway engines, and in making gas. One-fifth is used for household purposes, at the rate of about four tons a year for each family. The remainder is sent to other countries where coal is scarce.

In many coal districts there are also beds of "ironstone"—that is, *iron* and *stone* mixed together. There are very few beds of ironstone apart from the coal districts: the chief one is that of Cleveland, in the North Riding of Yorkshire. Forty years ago Cleveland was almost a desert; only a few peasants were engaged in agriculture; now the chief town—Middlesborough—has a population of 50,000 people. A very rich iron-ore is also found in the limestone rocks of North Lancashire and Cumberland.

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* This familiar name, "black diamond," is more than a mere joke. The diamond is pure carbon crystallized, and coal is almost wholly composed of carbon uncrystallized.

Beds of iron are found in Yorkshire, the Midland Plain, North and South Stafford, the northern lip of the South Wales coal-field, and in the Forest of Dean. There are 344 iron-mines, out of which more than 12,000,000 tons of iron ore are obtained by about 16,000 miners.

In the coal-fields iron is found in layers like coal, but not as a bright shining metal. It is so mixed with other substances that the "ironstone," as the ore is called, looks to a stranger like a lump of ordinary brownish-white stone. The large masses of ironstone are broken with pick-axes, and blown or blasted into smaller pieces with gunpowder. The ore is burned in large furnaces; and the iron is thus melted by the heat, so that it runs away from the stone in a liquid form through the fire into a mould at the bottom. Before being put into the furnace the 12,000,000 tons of ore were worth, say, £6,000,000 ; the iron that comes into the moulds under the fire weighs only 7,000,000 tons, but is worth £16,000,000, for it is then fit to be made into many articles of trade. The stone which is left in the fire has to be thrown away, and is called "slag." A large portion of the iron is made into steel, and of iron and steel many thousands of useful articles are made.

treas'-ures
quar'-ries
bu'-ried
min'-er-als
col-'li-er-ies
for-bade'
screen'-ing
fac'-tor-ies
di'-a-mond
peas'-ants
or'-din-a-ry
lĭ-quid

SUMMARY.

The chief **Coal-fields** are:—

The Newcastle coal-field, the Leeds and Nottingham, the Lancashire and Cheshire, North and South Wales, and North and South Stafford.

Iron Ore *is found apart from coal in the district of Cleveland, and in the limestone rock of North Lancashire and Cumberland.*

Ironstone *is found in beds in the following coal-fields:—Leeds and Nottingham, North and South Stafford, South Wales, and the Forest of Dean.*

LESSON XIX.

INDUSTRIES:—*MINING* (*continued*).

COAL and iron are the most valuable of the mineral treasures of this country; but large quantities of the ores of tin, copper, lead, and silver, besides materials used for building purposes, are also found.

The ores of such metals as tin, copper, lead, &c. are not found in layers like coal and ironstone, but in veins in granite, clay, slate, limestone, and other rocks. The rocks which hold the veins are called *lodes*. The lodes are very irregular in size, and in the direction in which they lie. Sometimes they are many feet in thickness, and at others only a few inches, or even less.

Tin is found only in Cornwall and Devon. Here the mines have been worked from the earliest times. There are 150 mines in these counties, which yield about 10,000 tons of pure white tin, valued at £660,000. To obtain this rich and handsome metal nearly 11,000 people are employed.

Copper was not found in large quantities in this country till the latter part of the seventeenth century. From that time until twenty-five years ago our mines yielded large supplies; but now that other countries send us large quantities, mining for this useful metal has not been carried on with much zeal. A quarter of a century since, the quantity taken out of the English and Welsh mines was five times as much as it is now. There are a few districts bearing copper in the Isle of Anglesea, Cumberland, Yorkshire, and Lancashire, but none of them on a large scale. The chief portion of the metal lies in the West of England; both North and South Wales have rich stores of it, but the tin-bearing districts of Devon and Cornwall yield the largest amount. There are 120 mines, employing 3,000 miners. The copper ore produced within a year weighs about 53,000 tons, out of which about 3,800 tons of fine copper are obtained, its value being £240,000. It is smelted chiefly at Swansea and in the Isle of Anglesea.

The lead-mines are much more scattered over the country than those of copper and tin. There are about 300 *lead* and *silver* mines dotted on the flanks of the ranges of hills that form the Pennine Chain, in the Welsh Mountains, the Devonian Range, and the Isle of Man. Lead ore carries with it small portions of silver, which can be taken from the lead. There are three kinds of rocks in which the ore is found—limestone, slate, and granite.

The lead in the mountain limestone, among the roots and spurs of the Pennine Chain—Weardale, Wharfedale, and Teesdale on the east, and down to the Peak of Derbyshire, where the chain ends—

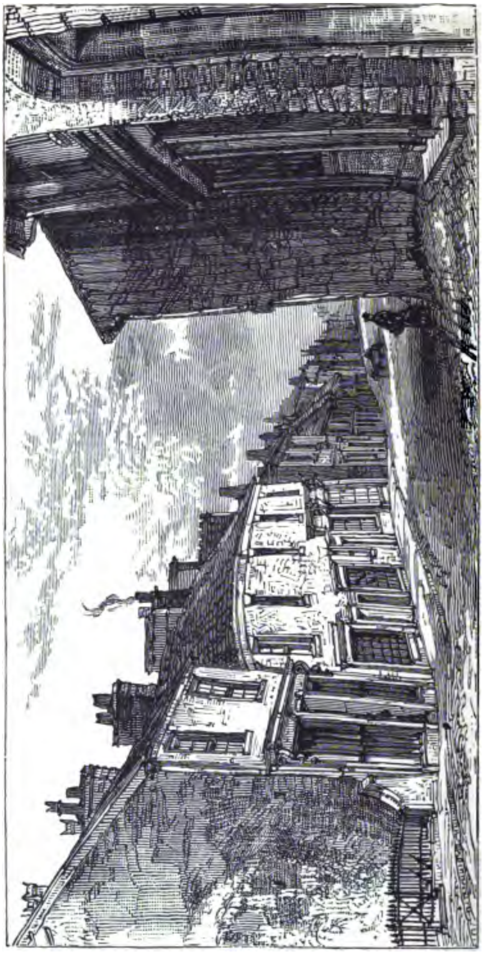
is mostly poor in silver. The ore found among the slaty rocks of the Lake district and the Isle of Man is very rich in silver. Small patches are found also in Shropshire, Cardiganshire, and Montgomeryshire, round the mouth of the river Dovey, near the sea; and some very rich in silver in the slaty rocks of Devon and Cornwall, in the valley of the Teign, and about Truro, Tavistock, and Helston. Lead is found in granite as well as in slate in the Isle of Man.

The lead ore found in a single year weighs about 70,000 tons, its value being £720,000. When the ore has been cleansed it yields about 50,000 tons of lead, worth over £800,000, and 380,000 ounces of silver, worth £84,000. Very little silver is found apart from lead. In many mines from 20 to 40 tons of lead ore have to be dressed to get one ton of pure lead. The number of people employed in mining and smelting lead is over 15,000, being more than those working for tin and copper together.

Zinc, another useful mineral, is mostly raised in the copper and lead mines. About 25,000 tons are thus yearly obtained, at a value of £80,000.

A very small quantity of *gold* is obtained from the quartz rocks between Bala and Barmouth in North Wales.

Salt is valuable for use as food and medicine, and is enjoyed by the little negro as much as a sugar-stick is by our English boys. That which is obtained from mines in this country is found



NORTHWICH, SHOWING SUBSIDENCE OF HOUSES, CAUSED BY MINING FOR SALT.

chiefly in Cheshire, in the locality of Northwich, Nantwich, and Middlewich, on the river Weaver, which flows into the Mersey. These mines were found early in the eighteenth century.* To the visitor who ventures to descend they present a curious and pretty appearance, with their pillars and crystal roof. More than a million tons of salt are sent along the river Weaver each year; and above 200,000 tons are raised in Staffordshire and Worcestershire, the total value being about £700,000. We send £500,000 worth of this useful mineral to other lands, chiefly in the East, and keep the rest at home to season our food and to make soda and bleaching-powder.

Immense quantities of *clay* are dug from the quarries in different parts of the country, particularly in the south and east, for the purpose of making bricks, tiles, and drain-pipes. Kent, Essex, Middlesex, and Norfolk are the principal brick-making counties.

More than 200,000 tons of a fine white clay called "*kaolin*" are annually taken from Cornwall and Devon to Staffordshire and Worcestershire to be made into porcelain pottery.

Building stone is found more or less in all parts of the country. *Granite*, of a very fine kind, abounds in Cornwall and Devon. It is also taken from some quarries at Mount Sorrel in Leicestershire, and in some parts of Cumberland and

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* But it is probable that salt was obtained from them in very early ages. In the case of the above names and some others the termination "wich" (not to be confounded with "wick") is thought to have signified a salt-pan or brine-pit.

Anglesea. *Portland stone* is raised in the Isle of Portland. It has been largely used during the last two centuries for building purposes. St. Paul's Cathedral and many of the other London churches are built of this stone. *Slate* is taken from North Wales, Cumberland, and Cornwall. *Free-stone*—the most perfect building stone—is found near Bath, Cheltenham, and Stroud, and in Yorkshire, Wiltshire, and Oxfordshire. The value of the building stone taken from the quarries every year is upwards of £3,000,000.

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smelt'-ed
por'-ce-lain
pot'-ter-y
quartz
crys'-tal
val'-ue
mĕ'-di-cine
lo-cal'-i-ty
quar'-ries
vis'-i-tor
bleach'-ing
lode

SUMMARY.

Tin.—*Cornwall and Devon.*

Copper.—*Cornwall, Devon, North and South Wales, Anglesea, Cumberland, Yorkshire, Lancashire.*

Lead and Silver.—*On the flanks of the hills that form the Pennine Chain, in the Welsh Mountains, the Devonian Range, and the Isle of Man.*

Salt.—*Cheshire at Northwich, Nantwich, and Middlewich.*

Kaolin.—*Cornwall and Devon.*

Granite.—*Cornwall and Devon.*

Slate.—*North Wales, Cumberland, and Cornwall.*

Free-stone.—*Near Bath, Cheltenham, and Stroud, and in Wiltshire and Oxfordshire.*

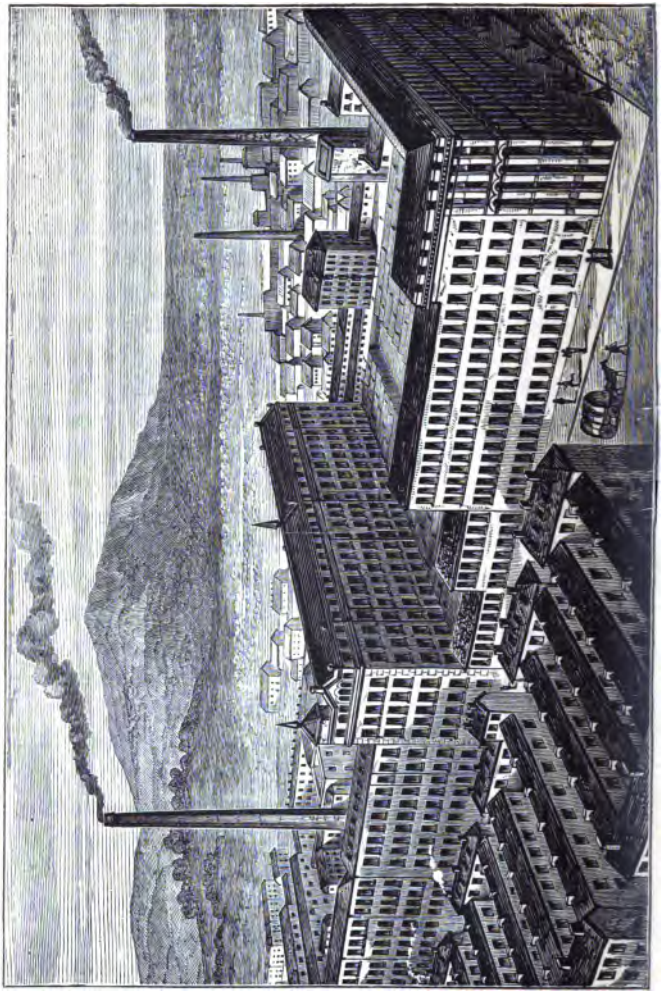
LESSON XX.

INDUSTRIES:—*COTTON AND WOOL.*

GREATEST among the industries of Great Britain is the *cotton* manufacture. We cannot grow cotton, or "cotton-wool," as the raw cotton is sometimes called, in this country. Our soil and climate are not suitable for the growth of the plant. Hence we have to buy from other countries. The southern of the United States of North America supply us with the largest quantity, and next India and Egypt.

The amount varies, but on an average we purchase about 1,500,000,000 pounds of cotton every year, at a cost of about £40,000,000. The cotton is packed in bales weighing about 400 pounds each, and is landed chiefly at Liverpool, because that is the nearest port to the district where the cotton manufacture is carried on.

The cotton district extends over the whole of the South Lancashire coal-field, that is over the southern half of Lancashire and the northern borders of Cheshire and Derbyshire. Nearly all the large towns in this district, together with very many populous villages, are entirely engaged in the cotton trade. Besides the spinning of cotton into yarn or thread, and the weaving of the thread



COTTON MILLS

into calico, the bleaching and dyeing and calico-printing give employment to many thousand persons.

The principal materials made of cotton are calico, print, muslin, and cotton thread. Of these, besides supplying the wants of our people, we sell abroad about £13,000,000 worth of yarn, and £58,000,000 of materials made of cotton. Nearly half a million people are engaged in the cotton trade.

Second only to the cotton is the industry for making *wool* into materials for warm clothing. Although we get a large quantity of wool from sheep grown in our own country, yet we are obliged to import still more from foreign lands. Formerly Germany and Spain supplied the larger quantity; but now at least two-thirds is brought from Australia, South Africa, and British India.

Besides the wool of the sheep, we import from other countries the fleeces and hair of some other animals, such as the alpaca and the llama.

Altogether we buy from other countries nearly 400,000,000 lbs. weight, at a cost of £24,000,000. The wool is landed chiefly at London, Hull, and Bristol.

As Lancashire is the chief seat of the cotton industry, so the West Riding of Yorkshire is the chief seat of the woollen industry. Leeds, Bradford, Huddersfield, Halifax, Wakefield, and Saltaire, in Yorkshire, and Rochdale in Lancashire, are the towns in and about which the manufacture is carried on. The bulk of the woollen cloth and almost all the worsted trade are confined to this district.

Leeds is the great centre of the cloth trade, Halifax is noted for worsted yarns, Halifax and Huddersfield for woollen and worsted goods and coatings, Wakefield for woollen hosiery, Rochdale for flannels, and Saltaire for alpaca.

Woollen cloth of a fine quality, called West of England cloth, is made at Bradford, Frome, and Trowbridge, in Wilts.

Wool is also made into carpets. This industry is carried on in different parts of the country, though each locality is rather famous for a special kind of goods. Still, the names are likely to mislead us: for instance, Axminster carpets are made, not at Axminster, but chiefly at Wilton, near Salisbury, where blankets and Brussels carpets are also produced. "Patent Axminsters" are made at Dewsbury in Yorkshire; Halifax manufactures tapestry and velvet piles; Kidderminster produces tapestry, velvet piles, and Brussels carpets, whilst Kidderminster carpets are made at Leeds. Flannel is made at Newtown in Montgomeryshire, and at Rochdale, Morpeth, and Shrewsbury.

The woollen industry gives employment to upwards of a quarter of a million people. Of the manufactured goods we export every year upwards of £400,000 worth of woollen and worsted yarn, £6,500,000 worth of woollen cloth, £10,000,000 worth of worsted goods, and £3,000,000 worth of blankets, flannels, carpets, and other forms of woollen goods; altogether nearly £20,000,000 worth.

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weigh′-ing
weav′-ing
bleach′-ing
dye′-ing
cot′-ton
wool′-len
quar′-ter
flan′-nel
for′-eign
fleec′-es
worst′-ed
al-pă′-ca
ho′-sier-y
tă′-pes-try
flan′-nels
lla′-ma

SUMMARY.

The chief towns engaged in the manufacture of cotton and woollen goods are—

1. **Cotton.**—*Manchester, Preston, Blackburn, Bolton, Bury, Burnley, Chorley, Middleton, Ashton-under-Lyne, Stockport, and Staleybridge.*
2. **Woollen Cloth.**—*Leeds, Halifax, Huddersfield, Bradford, in Yorkshire; and Bradford, Frome, and Trowbridge, in Wilts.*
3. **Flannels.**—*Rochdale, Newtown, Morpeth, Shrewsbury.*
4. **Alpaca.**—*Saltaire.*
5. **Woollen Hosiery.**—*Wakefield.*
6. **Carpets.**—*Leeds, Wigton, Dewsbury, Kidderminster, and Halifax.*

LESSON XXI.

INDUSTRIES :—*SILK, LINEN, LACE, HOSIERY, &c.*

THE cotton and woollen manufactures are chiefly confined to two large districts stretching over immense coal-fields. The spinning and weaving of *silk* is carried on in several towns wide apart from each other. Macclesfield and Congleton (in Cheshire), Derby, Manchester, Nottingham, and the districts of Spitalfields and Bethnal Green are the chief seats of the silk industry. Sewing-silk is made at Leek in North Staffordshire, and silk ribbons at Coventry. Silk spinning is also carried on at the old town of Malmesbury in Wiltshire.

We import every year nearly 5,000,000 pounds weight of raw silk from China, Japan, India, and Italy, and also immense quantities of silk goods from France and Belgium.

About 40,000 people are employed in the manufacture of silk.

The manufacture of *linen* from flax is chiefly carried on in the north of Ireland and in some towns in Scotland ; but some of the finest flax mills in the world are to be found in Leeds, which is the principal seat of the linen trade in England. Flax is grown in the north of Ireland and a little in Yorkshire, but much more is imported from

Russia, Holland, and Italy. We export linen goods every year to the value of £5,000,000.*

Lace is of two kinds—the one which is made by hand on pillows or cushions, and the other which is made on machines. The hand-made lace is worked very slowly, but is of great value; that made on machines is produced swiftly, and is much cheaper than the former, but not so rich in quality.

The pillow lace is made chiefly in the houses of the country villages and towns of Bedfordshire, Buckinghamshire, and Devonshire, where about 20,000 persons—mostly females—ply their busy fingers in working this choice article of dress. Nearly all the machine trade is done in and around the town of Nottingham, in large factories, men working the machines, and women and girls cutting, mending, and putting the lace into condition for sale. Lace is so much an article of changing fashion that the value of its annual production cannot be stated. When fashion is in its favour, the produce of more than 300 factories and 3,000 machines, with the labour of perhaps 40,000 people—men, women, and children—is worth at least £6,000,000, and sometimes £8,000,000, in a single year.

Hosiery is a name which includes "hose," or stockings, socks, gloves, and shirts, made in silk, worsted, cotton, and thread; and jackets, hoods, and neck scarfs in wool. The trade is now largely carried on in factories, although many people in villages conduct it in their own houses. It is confined to the counties of Nottingham, Leicester, and Derby. Nottingham is mostly engaged with the cotton, silk, merino, and cashmere branches of the trade, and Leicester with woollen goods, while Derby shares a little of each. The stockings and socks sent abroad yearly are worth about £400,000, and other goods about £6,000,000.

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* This includes those made in Ireland and Scotland.

The cutting of fabric to make *velvet* and *fustian* employs at least 5,000 people, chiefly about Manchester, Warrington, and Lymm (Cheshire), and the villages around.

The making of *straw-plait,* which means the plaiting of straw into narrow bands, is chiefly done in Luton, Dunstable, Hitchin, and St. Albans, and the villages of the district. Twenty years ago the trade was taught in "plait schools," but it is now mostly done by children at their own homes. The plait bands are made up into straw hats and bonnets in the factories of the district, and the finer kind of work is done in London. About 40,000 persons—chiefly females—work at this trade in the straw district.

In parts of Suffolk, and in the villages of the Stour Valley, as well as at Sheffield, the making of *hair-seating* from horse-hair employs 2,000 people. About 15,000 people are engaged in making *mats* and *ropes* and *sacking.* In Leicester and Coventry, *elastic web* for the sides of boots is a large trade.

stretch'-ing
pro-duc'-tion
plait'-ing
sev'-er-al
făsh'-ion
fus'-tian
rib'-bons
cush'-ion
e-las'-tic
me-ri'-no
cash'-mere
bon'-net

SUMMARY.

1. **Silk** *is made in Macclesfield, Congleton, Manchester, Derby, Spitalfields, Bethnal Green, Coventry, Leeds, and Malmesbury.*
2. **Linen** *is made in Leeds.*
3. **Pillow Lace** *is made in Bedford, Buckingham, and Devon.*
4. **Machine Lace** *is made in Nottingham.*
5. **Hosiery** *is made in the counties of Leicester, Nottingham, and Derby.*
6. **Straw-plait** *is made in Luton, Dunstable, Hitchin, and St. Albans.*

LESSON XXII.

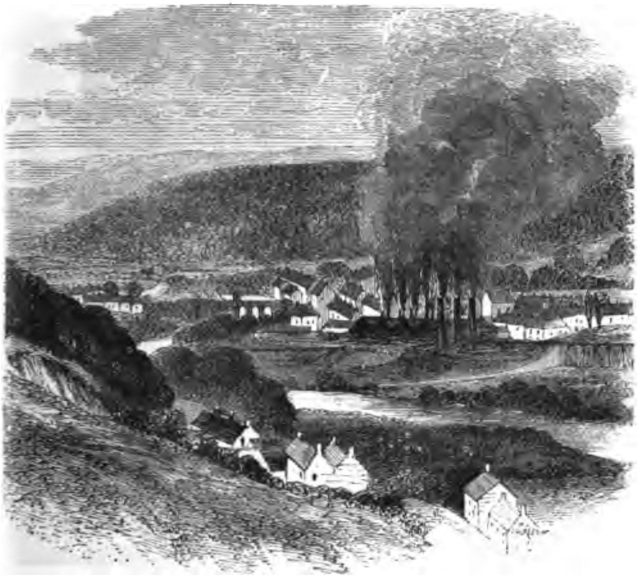
INDUSTRIES:—*IRON, STEEL, HARDWARE, &c.*

THE *iron, steel,* and *hardware* industry ranks next to that of cotton and wool. There is not a town of any importance in the kingdom where useful articles are not made of iron and steel, and it is, therefore, impossible to estimate the number of people engaged in this industry; but in the making of iron and steel alone not less than a quarter of a million of people are employed.

As a rule iron smelting is carried on where the coal and iron ore are found. The oldest seat of the iron trade is South Staffordshire, in the district called the "Black Country." There are also important iron-works in North Staffordshire; in Northumberland and Durham; on the banks of the Tyne; in the district of Cleveland, in North Yorkshire; in Cumberland, near Whitehaven; on the South Yorkshire coal-field, near Bradford and Leeds; and in South Wales.

A few years ago steel was made only in Sheffield, and that from iron imported from Sweden; but since Sir Henry Bessemer discovered a new process by which English iron can be made into steel at much less cost, steel manufacture is carried on in many of the iron districts, especially at Elswick near Newcastle, Eston near Middlesborough, Barrow-in-Furness, and in South Wales.

The numberless articles which are included under the name of "hardware," such as nails, screws, locks, chains, wire, bolts, spikes, cutlery of various kinds, tools of different sorts, pins, needles, steel pens, besides many articles for domestic use, are chiefly made in a few districts of which the Black Country is the chief.



TREFOREST IRON WORKS, SOUTH WALES.

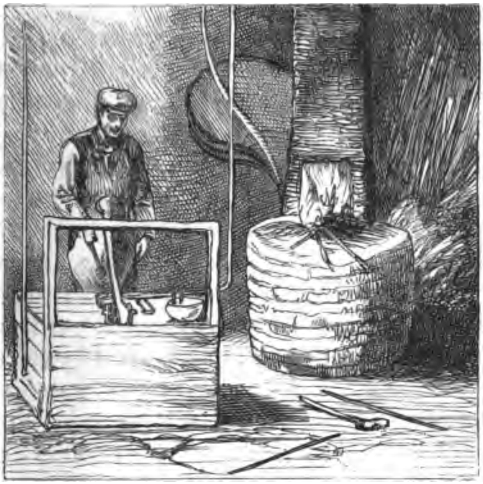
Nails, screws, chains, locks, bolts, and spikes are nearly all made in South Staffordshire. In Dudley and the villages round about there are thousands of little shops whose windows are full of nails, screws, and chains. Each shop usually forms the workshop and the dwelling-house. And here fathers, mothers, sons, and daughters work

HAND-NAILER'S FURNACE.

at forges, cutting and hammering the nails and chains; the younger ones blowing the bellows and doing the lighter work. Machine-made nails and screws are manufactured at Birmingham and Wolverhampton.

The making of nails, screws, rivets, and chains gives employment to about 30,000 persons, of whom more than half are women and girls. We export more than 20,000 tons of these useful articles every year.

Locks are made principally at Walsall and Wolverhampton ; bolts and spikes used in building carriages, and fixing the iron or steel rails of our railways and tramways, are made in Birmingham and the Black Country. Wire is made in Wolverhampton, Manchester, and Sheffield ; buttons, pins, and steel pens chiefly in Birmingham ; needles in Redditch, in Worcestershire ; cutlery in Sheffield and Birmingham ; and tin-plate in South Wales.



HAND-NAILER'S BLOCK-FRAME.

Railway engines are largely built at Crewe in Cheshire, where they are turned out at the rate of one per day. Agricultural machinery is made in several towns, but notably at Leeds, Bedford, and Ipswich. Fire-arms, guns, rifles, &c., are made in Birmingham. Large cannon are produced at Woolwich and Elswick, and armour-plates and steel-rails in Sheffield.

The greater portion of the *watches and clocks* made in this country are produced in only three districts—Clerkenwell in London, Coventry in Warwickshire, and Prescot in Lancashire. Prescot is chiefly employed in the rough work—the making of wheels and springs, cases and faces; while London and Coventry pay attention to the fitting of these things together and finishing the goods. There are watch and clock fitters in every town and most villages in the country, about 25,000 in all, of which number one-half are absorbed by the three places here named. To prove that watches are made of gold or silver of a certain value, it is a custom to have them stamped in London at the Goldsmiths' Hall. In a single year, 32,000 gold and 100,000 silver watches, besides 13,000 gold and 36,000 silver cases, have been stamped.

Birmingham is the great centre for imitation jewellery: here thousands of people are employed in making mock gold and silver chains, lockets, brooches, earrings, and other fancy articles.

Electro-plate is made in Sheffield and Birmingham.

en-gaged'
in-clūd'-ed
ab-sorbed'
ĕ-spec'-i-al-ly
dis-cov'-ered
prin'-cip-al-ly
cut'-ler-y
need'-les
brooch'-es
im-i-ta'-tion
bel'-lows
forg'-es

SUMMARY.

Iron *is made in North and South Staffordshire, on the Newcastle coal-field, in the district of Cleveland, near Whitehaven, on the Leeds and Nottingham coal-fields, and in South Wales.*

Steel *is made in Sheffield, Elswick, near Newcastle, Eston near Middlesborough, Barrow-in-Furness, and in South Wales.*

Nails, Screws, Locks, Bolts, Spikes, *&c., are made in South Staffordshire, in and around the towns of Dudley, Wolverhampton, and Walsall, and also in Birmingham.*

Wire *is made in Wolverhampton, Manchester, and Sheffield.*

Buttons, Pins, and Steel Pens *in Birmingham.*

Needles *at Redditch, in Worcestershire.*

Cutlery *in Sheffield and Birmingham.*

Railway Engines *at Crewe, in Cheshire.*

Fire-arms *in Birmingham.*

Large Cannon *in Woolwich and Elswick.*

Armour-plates and Steel-rails *in Sheffield.*

Watches and Clocks *in Clerkenwell, Coventry, Birmingham, and Prescot.*

Electro-plate *in Sheffield and Birmingham.*

Imitation Jewellery *in Birmingham.*

LESSON XXIII.

INDUSTRIES :—*VARIOUS.*

Pottery is the name by which the making of cups and saucers, jugs and plates, basins and dishes, and all things formed of clay is known. Although there are some works in Worcestershire,

BURSLEM.

Devonshire, and London, at least two-thirds of the people engaged in this work dwell in a corner of the north-west portion of Staffordshire. This district, known as the "Potteries," is only about ten or twelve miles in length. It includes the towns and villages of Stoke-upon-Trent, Burslem, Hanley, Longton, Etruria, &c. These towns and villages are not dotted about, but form a long chain, with scarcely a break in the whole.

POTTER'S LATHE.

The people employed in the "Potteries" alone number at least 150,000, and the works 230. Except coal, none of the materials used in the trade are found in this district of black smoke, huge chimneys, and flaring fires. We might almost wonder that 130,000 tons of clay should be sent from the south-west coast of England—chiefly from Cornwall and Devon—to the Potteries to be ground and mixed up with sand, ground glass and flint, and stone and burnt bones, and made into earthenware. The reason is very clear: for every ton of pottery made, more than three tons of coals have to be burned; and as there is no coal found where the clay is dug, it costs less to bring the smaller weight of clay northward than to take the greater weight of coal southward. The yearly export of pottery amounts in value to £1,800,000.

The making of *glass* employs 20,000 people in nearly 220 glass-works and 37 factories in which glass is cut. Glass-works are more scattered than those for making pottery; but the chief localities are Newcastle, Sunderland, Birmingham, Stourbridge, and London. Birmingham and Stourbridge are noted for crown sheet-glass, whilst bottle-glass is made at Castleford in Yorkshire, at Sunderland, and in the valley of the Don. We export glass each year to the value of £1,000,000.

Shipbuilding, in a country washed all round by the sea, must of course be a large industry. There are more than 50,000 men and boys at work in this trade. We have about 50 shipyards devoted to the building of iron vessels, most of them at the mouths of large rivers—the Tyne, the Wear, the Thames, and the Mersey—where the water is deep enough to float large ships. This branch of the trade employs 21,000 people—nearly half of the whole. Wooden vessels and boats, being lighter, can be built in more shallow parts of a river, and on that account the yards in which they are built are spread about the country.

The proportion of iron to wooden ships has increased very rapidly of late. It is probable that in a few more years wood will scarcely be employed at all except for the smaller vessels.

Nearly 3,000 people are engaged in collecting rags and waste paper, which refuse is boiled down and made into *paper*. Esparto, which is the name for a Spanish grass, is also brought into this country to the value of £1,500,000, to be made into paper. Nearly all the mills in which paper is made are in the open country, on the banks of rivers, where water-power is obtained to drive the machines. The county of Kent is the chief seat of the paper-making trade. There are about 350 mills, having 500 machines ; these are worked by 20,000 people, nearly one-half of whom are females. It is believed that the quantity of paper made in a single year exceeds 300,000,000 pounds in weight, or nearly double the amount made twenty years ago.

The quantity of paper used in this country must be very great, when we bear in mind that there are over 1,400 newspapers and 640 periodicals published. The paper trade finds further employment for about 60,000 printers, and a large number of authors, editors, reporters, publishers, news-agents, and booksellers.

Bookbinding is akin to printing. The folding of printed sheets of paper, the sewing, laying on of covers, printing gilt letters on the backs and sides, employ about 17,000 persons, nearly half of them females. And 6,000 people—chiefly in London, Manchester, and Blackburn—are engaged as *paper-stainers*—that is, the printing of paper-hangings. To these may be added 3,000 young people, chiefly girls, who make paper *boxes* and *bags*.

The *lucifer match* was first made nearly fifty years ago. Some years later it was found that many of the workers suffered great pain in the bone of the jaws. The disease began with toothache, and if it were not stopped the jaws and gums swelled, the teeth dropped out, and the jaw-bone at last fell to pieces. This was due to the phosphorus placed on the end of the match. The evil has been largely cured by the use of red phosphorus in place of the white, which was used before, and by the employment of the people in large factories, where they have better air and more comfort than in their own poor homes. There are 52 factories—27 in London and 25 in the provinces—where over 3,000 hands are employed, three-fourths of them girls. It is stated that no less than 288,000,000 matches are made every day. Besides the matches made for sale in this country, we send abroad about £170,000 [illegible] in a year.

Although every town and many villages in England have their saddler's shop, the great trade in *saddlery* is carried on at Birmingham and Walsall. There are so many items of the trade belonging to the iron and steel industry that large quantities for sending abroad can only be made in the district of the iron trades. Stirrups are made of iron or steel; the mountings of harness—the buckles and rings—are of brass or silver. Then the cartridges, holsters, powder flasks, leggings, rugs, whips, and many other small articles, are mixed with saddlery, finding employment for at least 22,000 people in the country.

At least 6,000 people—more than half of whom are females, and many of them children—are engaged in making *buttons*. These useful little articles, as well as studs and sleeve-links, are made of glass, horn, pearl, ivory, bone, brass, iron, tin-plate, steel, silver, wood, and many other things. Most of these goods are made in or near to Birmingham.

A large *papier maché* (mashed paper) trade is done in Birmingham—the making of boxes, trays, small tables, and many other light goods from paper. In some cases sheets of paper are pasted one on another until they are thick enough for a table-top, and are then painted and varnished as though they were made of wood. In others, waste paper is boiled into a pulp or paste and then rolled into boards, to be cut into any shape, as wood is, and used for small and light articles.

Fishing is an industry which employs 20,000 men and boys, who go on the deep sea and brave all sorts of weather. And when the fleet of smacks and boats comes into port, thousands of women and children are ready to receive the fish. A part only of the harvest of the sea is sold to be eaten fresh, for the larger portion is salted and cured, to be stored up for future use.

In Yarmouth and Lowestoft, and many other ports, there are large curing houses, in which fish are salted and hung up to be dried, and some of them to be exposed to the smoke of a wood fire. During the first three months of the year the fishing trade of the North Sea is most busy. Mackarel abound in July, August, and September; and in the last three months of the year herrings are caught in numbers that can scarcely be told. In one week alone as many as 24,000,000 of herrings have been landed at Lowestoft pier. In the summer, about July and August, the coast of Cornwall is a busy scene, with thousands of men, women, and children landing and curing pilchards.

In addition to the industries of which we have given some account, there are others which are carried on in every town and village in the kingdom, and which give employment to hundreds of thousands of men, women, and children, such as dressmaking, tailoring, baking, carpentering, building, and so on.

There are also some smaller industries of less general interest, but of great consequence to the places where they are carried on, such as—brewing at Burton-on-Trent, Romford, London, Alton, &c.; sugar-refining at Bristol, Whitechapel (London), and Plymouth; leather-tanning in Bermondsey (London); umbrella-making at Stroud; biscuit-baking in Reading and London; boot and shoe making at London, Northampton, Leicester, and Stafford; chair-making at Wycombe; crape at Norwich; and soap and candles chiefly in London and Lancashire.

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ma-te′-ri-als
earth′-en-ware
pub′-lish-ers
book′-sel-lers
stir′-rup
au′-thors
ĕ′-dit-ers
re-port′-ers
in-creased′
hōl′-ster
di-sease′
tooth′-ache
sad′-dler
sleeve′-links
pil′-chard
pe-ri-od′-i-cals
phos′-phor-us
tail′-or-ing
scat′-tered
um-brel′-la

SUMMARY.

Pottery *is carried on in the "Potteries," in South Staffordshire, at Stoke-upon-Trent, Burslem, Hanley, Longton, Etruria, &c.*

Glass *is made in Newcastle, Sunderland, Birmingham, Stourbridge, London, and Castleford.*

Shipbuilding *is carried on chiefly on the banks of the rivers Tyne, Wear, Thames, Mersey.*

Paper-making *is carried on in Kent.*

Lucifer Matches *are made chiefly in London.*

Saddlery *has its great trade in Birmingham and Walsall.*

Brewing *is carried on in London, Burton-on-Trent, Romford, Alton, &c.*

Sugar-refining *at Bristol, Whitechapel, and Plymouth.*

Tanning *at Bermondsey.*
Umbrella-making *at Stroud.*
Biscuit-baking *at Reading and London.*
Boot and Shoe Making *at London, Northampton, Leicester, and Stafford.*
Chair-making *at Wycombe.*
Crape-making *at Norwich.*
Soap and Candles *in London and Lancashire.*

LESSON XXIV.

COMMERCE:—*IMPORTS AND EXPORTS—SHIPPING.*

We dwell on an island which is too small to supply all our wants. Our people increase in number at the rate of 350,000 a year: The chief means we have of feeding and clothing and keeping in comfort the 25,000,000 of men, women, and children in England and Wales are those of *Commerce.* Our land does not yield enough corn and fruit for our food, but it contains more iron and coal and tin than we need. We make machines of iron and drive them by steam, to produce which coal is used in large quantities. We send our ships to other lands to fetch cotton and wool and silk; and in working these articles on our machines many thousands of people are employed. England is the great workshop of the globe. She sends clothing to be worn by all the tribes of the earth, and iron goods and cutlery to almost every house in the world. The people who buy our clothes and hardwares send us corn and wine, cattle and fruits, cheese and eggs, tea, coffee, sugar, rice, and spices, and even cooked meats, and many other kinds of food which we cannot grow in large quantities. They also send us hides (of which we make leather), oil and tallow, drugs, timber, gold and silver, paper, and a large number of other things to be made into useful articles by our workpeople.

This exchange of goods is called Commerce or Trade, and, as we have seen, the processes of making articles from raw goods, such as calico from cotton, leather and boots and shoes from hides, clothing from wool, and soap from tallow and potash, are called Industries. The industries find work for people at home; and commerce is the means of buying from others the goods which are not produced at home, and of selling to them things which they need. By this means the comfort of living in this land has so much increased that the peasant of to-day enjoys greater luxuries than did a monarch four or five hundred years ago.

The towns and villages, both on the sea-coast and on the banks of deep rivers, at which ships land goods from abroad and receive those made at home to be taken to other parts of the island and also across the sea, are known as *ports.* Goods which are brought from abroad to this country are called "Imports"—they are brought *into* port; those sent away from our land are called "Exports"—they are sent *out of* port.

The *Imports* into our island are worth more than £368,000,000 in a year. Without them we should not have enough bread to eat, for they include £28,000,000 worth of corn, of which flour, bread, and biscuits are made; and £12,000,000 worth of maize, chiefly to feed cattle and poultry. But for these imports we should have no tea, cocoa, nor coffee to drink; no rice, sago, oranges, raisins, and dried currants; very little sugar, and few eggs; and only a small quantity of bacon, hams, or meat for food. We should also have only a small amount of wool, no cotton or silk, and, therefore, a scanty supply of clothing. The tea brought here in a single year is worth £13,000,000; the raw sugar, £16,000,000; the wool imported, £23,000,000; and the raw cotton, £34,000,000. Besides these, we have many metals, oils, drugs, a large amount of wood of many kinds from distant lands, and hundreds of other things that help to make life pleasant, as well as to find work for busy hands to do.

We could not buy all these items of comfort if we had no other goods to send in exchange, for we have very little gold and silver in the mines of this country. People in other lands need our tin and iron, our coal and salt, which we *export* to them. But these goods would not suffice to pay for all the things we receive from abroad. Our people are a busy nation, who make firearms, steam-engines, railway carriages, machines, cutlery, cotton and linen goods, silk and woollen clothing, boots and shoes, books, beer, candles, soap, furniture, and many other goods, not only for our own use, but also as *Exports* for other lands. We send about £250,000,000 worth abroad; after our own wants are supplied.

THE QUAY AT NEWPORT, SOUTH WALES.

These goods are sent from the towns where they are made to the large ports, both on the coast and on the large rivers. Some go by rail, others by canal, and a large quantity by vessels *coastwise*, which means along the coast from one port to another. From the great seaports ships carry away to foreign lands the produce of the industrial towns. Although some of these ships go across the sea to countries on all sides of our own land, they chiefly trade to those places which are nearest to the coast they start from. The *exports* from the *east* coast are mostly sent to Russia, Norway, Sweden, Germany, Holland, and Belgium—those countries lying east of England. For this reason the ports of Newcastle, Sunderland, Shields, Hartlepool, Hull, Grimsby, Harwich, and London are largely engaged in trading with eastern lands, taking our goods there, and bringing back tallow, fur, and corn from Russia, timber from Sweden and Norway, wool, cattle, and hides from Germany, Holland, and Belgium. The ships which leave the south coast—Dover, Folkestone, Southampton—trade chiefly with France and the Channel Islands, those being nearest to our south coast. On the west side of England, the ports of Whitehaven, Liverpool, Cardiff, and Bristol, have the greater share of the trade with Ireland and America, those lands being opposite the western side of England.

To conduct these trades of Import and Export and the coastwise traffic, we have more than 20,000 ships belonging to our island, and nearly 200,000 men and boys employed on them.

The port of London receives the greatest number of ships, more than 11,000 in a year; and Liverpool is the next in importance, nearly 5,000 vessels entering the Mersey. The ships which trade with Liverpool, however, are much larger, on the average, than those which trade with London; for whilst the 11,000 ships which ascend the Thames carry 5,700,000 tons, the 5,000 which enter the Mersey carry 4,600,000 tons. The exports of Liverpool are of even greater value than those of London; but the imports of the metropolis are so very large that they more than make up for the deficiency. Liverpool also sends out more emigrants to other lands, chiefly to America. Out of about 112,000 people who leave England every

THE THAMES BELOW LONDON BRIDGE.

year, more than half of them depart in ships from the Mersey.

bis′-cuits	**rais′-in**	**av′-er-age**	**lux′-u-ries**
cur′-rants	**car′-ri-age**	**pro′-cess-es**	**de-fi′-ci-en-cy**

SUMMARY.

The chief English ports are—

1. *On the East Coast—Newcastle, Shields, Sunderland, Hartlepool, Hull, Grimsby, Harwich, London.*

2. *On the South Coast—Dover, Folkestone, Southampton, Plymouth.*

3. *On the West Coast—Bristol, Cardiff, Liverpool, Whitehaven.*

Our chief **Imports** are—

1. *Raw materials for manufactures, such as cotton, silk, wool, hemp, flax, hides, &c.*

2. *Articles for food, as wheat, rice, maize, sugar, eggs, meat, tea, coffee, &c.*

3. *Fruits, such as raisins, currants, oranges, &c.*

Our **Exports** *consist almost entirely of manufactured goods of all kinds, the chief being cotton and iron.*

LESSON XXV.

MEANS OF INLAND TRAFFIC:—*ROADS, CANALS, RAILWAYS, AND TRAMWAYS.*

A COUNTRY without railways can have but little trade between one town and another; for the process of taking goods by road is both costly and slow. And a country without large rivers can have but little trade with other lands; for without broad, long, and deep streams there can be but few harbours for ships.

England is one of the most favoured lands in the world in this respect. Her shores are washed all round by the sea, while her rivers are so numerous, and many of them so long, that there are very few places far from a water-way.

Most of our ports are made either at the mouths or on the banks of deep and broad rivers, where ships can be secure from winds and waves while being filled with, or emptied of, cargo. And many towns of industry are found either at these ports or within a short distance.

To convey goods from one river to another, without taking them out to sea or perhaps half round the coast, canals have been cut across many parts of the country, passing by large towns, to which goods may be taken in boats drawn by horses.

These canals were made before railways were thought of. But railways have not taken away their business, for they are still used for cheapness and for the safe carriage of pottery and other goods that require much care. There are at least 125,000 men, women, and children, who live day and night in these floating barges, earning their bread as carriers.

But trade has grown so much during the present century that speed of transit for both goods and people is needful, even though the cost be greater. Besides, the canals and roads together would not suffice for the carriage of all the coal and iron, wood, wool, cotton, silk, and the thousands of other heavy things that now make up the items of the country's trade. There are 110,000,000 tons of minerals alone sent to various parts of the land, many of them to places where canals do not reach. And there are hundreds of thousands of people, too, who need to travel, but who must move at a faster rate than coaches and boats can carry them.

Happily, to meet the needs of the trading world, a network of railways almost covers the land, by which all the greater towns are linked; and so wide has the system spread that there are even very few farms in England at a great distance from a railway.

The railway lines in England and Wales measure more than 12,000 miles in length; and the money invested in them is £580,000,000. The need of some speedy means of moving about is shown in the fact that more than 500,000,000 tickets are taken for railway journeys in this country within a single year; and the distance over which trains travel in the same time is more than 90,000,000 miles. The amount of money (called "traffic receipts") received by railway companies in a year is £51,000,000. Out of this sum, they spend for working the traffic £28,000,000, which leaves £23,000,000 as profit for their trouble and on the use of their capital.

In some other countries, the railways are owned and worked by the State, or Government; but such is not the case in England, where every line belongs to a company of persons who use them as a means of making profit. Most of the great lines have their starting place in London, which is the chief trading place in England.

London may be compared to the boss of a wheel and the railway lines to the spokes. The line that runs almost straight to the *north* of England, is called the "Great Northern;" there are some short lines in the north, but this is the chief and the largest one—hence it is the "Great" Northern. The one that cuts through the *midland* counties is known as the "Midland" railway; and the line that runs from London to the *north-western* counties is termed the "London and North-Western:" this is the chief line in the country. The next in importance is the one that runs to the *western* counties, for which reason it is called the "Great Western;" and a long line stretching from London to the *south-western* parts of England is termed the "London and South-Western." The one known as the "London, Chatham, and Dover" takes its name from the fact of one end being in *London* and the other in *Dover*, with *Chatham* at about the middle of the line. The "London, Brighton, and South Coast" is so called because it runs from *London* to *Brighton*, and thence along the *south coast* to Portsmouth. The "South-Eastern" railway runs from London to the *south-eastern* corner of the country; and the "Great Eastern" to the *eastern* counties. There are several "local" lines, that is, lines serving special districts or *localities* rather than the whole country; but the main lines strike out from London.

Each of the main lines stretches from London to some large port on the fringe of the island; and has branches running off to all the large industrial towns that lie on either side. The greatest towns, such as Liverpool, Manchester, and Birmingham, have several lines of communication with London. But each of the great lines has a a special trade. Nearly all the goods and people taken to America or Ireland are sure to be moving to some port on the western side of England; for ships start from that side which is nearest to those countries. And those for Russia and Germany, and other countries lying on the east of England, are chiefly carried by railway to our eastern ports. Goods and people going to France find their way mostly by the London, Chatham, and Dover, or the South-Eastern, as these lines run to the English ports nearest to France. The Midland lines bear woollen, cotton, and silk goods, which are made in the districts through which they run; the Northern and Welsh railways (and also the Midland) carry large quantities of coal and iron; the Southern and Eastern bear fruit and vegetables, which abound in those districts. And thus each line has its special trade, and bears also people whose dress and manner and style tell plainly of the industries they are engaged in.

To manage and work these railways, there are 14,000 engine-drivers and stokers; 23,000 station-masters, clerks, and other officers; and 50,000 porters; in all, 87,000 people engaged. There is much danger in the work, for out of this number of persons about 4,500 meet with some accident, and about 700 are killed every year.

Tramways may be called "street railways," for they are railways placed in the streets. The "cars" or carriages are drawn by horses instead of by steam. They were made and used to a small extent in Gloucestershire about sixty years ago; but were not worked in their present form in London until the year 1870. Now there are more than fifty miles of line open in London alone, and most large towns in England have begun to use them.

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rail'-ways
fa'-voured
nu'-mer-ous
float'-ing
coach'-es
re-ceipts'
com'-pan-ies
lo-cal'-i-ties
trou'-ble
stretch'-ing
clerks
chief'-ly

Tran'-sit, the act of passing from one place to another.

In-vest'-ed, laid out with the expectation of getting a a profit.

Cap'-it-al (in railways), the money expended in making the lines and in the first purchase of "rolling stock," viz. engines and carriages.

I'-tems, the separate figures of an account; the smaller sums, of which a great sum is made up.

Summary.

The chief railways running from London are—

1. *The London and North-Western, from Euston Square to Rugby, Stafford, Crewe, Chester, Holyhead, Leeds, Manchester, Liverpool, Preston, Carlisle, &c.*

2. *The Great Northern, from King's Cross to Peterborough, Doncaster, York, Northampton, Nottingham, Sheffield, Manchester, Liverpool, Hull, Leeds, Durham, Newcastle, &c.*

3. *The Midland, from St. Pancras to St. Albans, Bedford, Leicester, Derby, Sheffield, Carlisle, Birmingham, Bristol, &c.*

4. *The Great Western, from Paddington to Reading, Bath, Bristol, Exeter, Plymouth, Penzance, Oxford, Birkenhead, Liverpool, Gloucester, Cardiff, &c.*

5. *The London and South-Western, from Waterloo Bridge to Winchester, Southampton, Portsmouth, Salisbury, Exeter, Barnstaple, &c.*

6. *The London, Chatham, and Dover, from Holborn Viaduct to Chatham, Canterbury, Dover, Margate, Ramsgate, &c.*

7. *The London, Brighton, and South Coast,*

from Victoria to Brighton, Portsmouth, Hastings, Worthing, &c.

8. *The South-Eastern, from Charing Cross to Canterbury, Ramsgate, Margate, Folkstone, Dover, Maidstone, &c.*

9. *The Great Eastern, from Liverpool Street to Cambridge, Norwich, Yarmouth, Harwich, &c.*

LESSON XXVI.

IMPERIAL GOVERNMENT:—*TAXES—REVENUE AND EXPENDITURE.*

"GOVERNMENT" means the control of our affairs. It is of two kinds—*Imperial* and *Local.* That which concerns the nation at large is Imperial, being done in the name of the monarch or sovereign; and that which applies to a single town or parish is Local, being for a single locality or place. We often speak of the people who govern us as the Government—the same word which is used for the act of governing.

The laws by which we are governed are made at Westminster, in a large building known as the Houses of Parliament, or houses in which men "parley," or speak on matters of State. There are two of these chambers—one called the House of Lords, and the other the House of Commons. The members of the House of Lords belong to that class of people called the nobility or peerage—dukes, bishops, and lords—who are mostly persons having not only titles, but also great wealth in land and money. The members of the House of Commons belong to the rest of the people, who are sometimes spoken of as "commoners." Neither of these Houses can make a law to govern us without the consent of the other one; and even when they have agreed upon what should be a law, they must have the consent of the monarch. For a long time past, however, it has been understood that when the two Houses are agreed the monarch will not oppose them. While a proposed law is being discussed, it is called a Bill; when it has been agreed upon and signed by the monarch, it becomes an Act of Parliament. From this it will be seen that the Imperial Government is managed by what are called the Three Estates of the Realm—the Sovereign, the Lords, and the Commons.

Besides the making of laws, the governing body have to raise the money needed to keep up the army and navy. They have to pay the judges and the great officers of State. They have also to arrange for the post-office and telegraph service, and to help in supporting schools for the people.

As this work is done for all the people in the land, we all have to pay a share of the cost. To get this money the Government have to make certain charges on the population; and the charges they make are called *taxes*. There are two kinds of taxes, *direct* and *indirect.* A "direct" tax is that which is made in a direct or straightforward manner. Persons who inherit property must pay a part of it to the Government; every person who keeps a carriage, a man-servant, or a dog, or who owns land or houses, or even who rents a house, must pay a tax. All who have an income above a certain amount have to pay a small part of it to the Government by way of income-tax. These are called *direct* taxes, because they have to be paid in a *direct* way to an agent of the Government.

Indirect taxes are those which we have to pay through many persons who have had to pay them in a direct manner. When a ship brings costly goods from abroad—wines, spirits, tobacco, silks, and a few other things—the owner cannot land them without paying a tax. Officers employed by the State search the ship on its coming into port, and charge a tax in proportion to the value of the cargo. These charges are called Customs* dues; and the men who levy the amount to be paid are known as Customs officers. The money paid by the merchant to these officers is given to the governing body of the country, to assist in paying the expenses of government. Of course, the merchant must charge more for his goods when he sells them than he would have done had there been no tax made upon them. And as the shopkeeper has to pay to the merchant more for his goods, he charges more to the people who buy of him. Thus all of us have to pay those Customs dues in an *indirect* way—through the shopkeeper and the merchant; and that is why these are called "Indirect Taxes."

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* This word once meant a payment made by custom, but such customs very speedily became compulsory.

The taxes which we have to pay—direct and indirect—are obtained from nine sources. The largest amount is received for "licenses;" that is, for permission to sell and to make certain goods, to shoot game, to keep man-servants, carriages, and dogs, to have coats of arms painted on carriages, and for many other privileges. The money thus obtained amounts to about £28,000,000 a year. The Customs dues reach over £20,000,000 yearly. On every deed or document which shows the sale of property, and all agreements which may have to be defended in law, and on every receipt for £2 and upwards, a stamp must be fixed. The stamps are made by Government, who sell them to the people, and thus obtain an income of about £10,000,000 a year. Persons who own property, and even those who rent houses, or have a certain amount of income, pay taxes to the amount of £8,000,000 per annum. The Post Office* is now managed by the State, by which £6,000,000 is earned in the sale of postage stamps, and £1,300,000 profit made in sending telegrams, for which they charge people who send messages. There are a few other means of getting money which need not be told in detail, and all these sources of income yield almost £85,000,000* a year.

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* The Post Office authorities deliver about 922,000,000 letters (being about 3,700 to every 100 persons in the country), 265,000,000 newspapers, and 111,000,000 post-cards in a year. They forward more than 20,000,000 messages by telegraph, and issue about 15,000,000 money-orders for a gross sum of £23,000,000.

Of this great sum of money, £28,000,000 are paid as *interest* on money which the Government has borrowed in various amounts at different times, chiefly for war purposes.† Nearly £18,000,000 are paid for what is called the Civil List and Civil charges of all kinds (salaries and pensions for royalty, officials, &c.), and for Post Office and Packet service. The army and navy‡ cost about £32,000,000; the money paid to help schools is about £2,800,000, and when the cost of other branches of public work is added, the whole reaches about £85,000,000. The whole of the money received is called *Revenue*, and that which is paid, *Expenditure*.

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* This is a tax of nearly £2 10s. for each person—whether man, woman, or child. The sum of £85,000,000 is the taxation for the whole of the United Kingdom; the proportion for the people of England and Wales would be nearly one-fourth less.

† The actual sum owing, on which this annual amount of interest is paid, is about £780,000,000. It is called the "National Debt," because it is a *Debt* for the discharge of which the *Nation* is liable.

‡ The British Army includes 130,000 regular soldiers, 118,000 militia (men who have to serve only during a portion of the year), 15,000 yeomanry (chiefly farmers, who are called out during a small portion of the year for duty, and may be used at any time for home purposes), 161,000 volunteers, and 33,000 army reserve (including enrolled pensioners), a total of 442,000 men. The navy comprises 34,000 men and 7,000 boys, 4,000 of the latter being in active service in the fleet, and 3,000 under instruction in training-ships. There are 4,300 men in the coastguard service, 1,100 in Indian troop-ships, and 14,000 marines, making a total of 60,000 men and boys in the naval service.

sov'-e-reign
dis-cussed'
tĕ'-le-graph
com-pul'-so-ry
priv'-i-leg-es
a-gree'-ments
to-bac'-co
mes'-sag-es
in-di-rect'
bor'-rowed
rĕ'-ven-ue
ex-pend'-it-ure

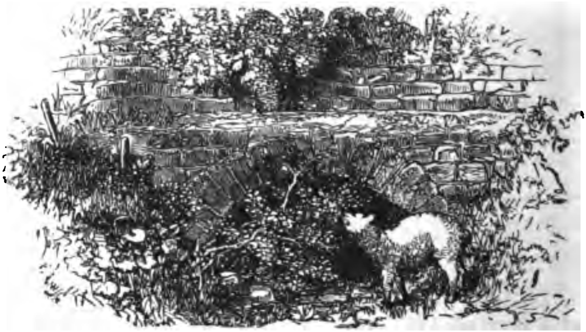
Doc'-u-ment, a written paper or parchment.
In'-ter-est, money paid for the use of borrowed money.
Lĕ'-vy, to fix the amount to be paid by each.
Prop'-er-ty, anything that is our own, but generally applied to land, houses, or shares in a business.
In-her'-it, to come into possession of property on the death of the former owner.

SUMMARY.

The Revenue is made up from Direct and Indirect Taxes.

The chief sources of Income are — licenses, customs, stamps, income-tax, post office, telegraph office, &c.

The chief sources of Expenditure are—interest on the National Debt, civil list, army and navy, post office and packet service, and education.



LESSON XXVII.

LOCAL GOVERNMENT:—*RATES.*

Local Government, as shown in the previous lesson, applies to a single *locality*, such as a city, a town, or a parish. It is concerned with the making of roads and sewers, the repairing of bridges, lighting the public streets, the feeding, clothing, and housing of the poor, the control of the police, the provision of cemeteries for the burial of the dead, and the working of school boards, or any matter which concerns a *locality*, rather than the country at large.

Some of the *local* work is directed by a body of men who may not live in the "locality;" but as it is *for the benefit* of the locality itself, it is termed Local Government. The greater share of this work is done by the people who reside in the district to which it applies; and for this reason such work is called Local *Self*-Government, as it is done by and for the people themselves, and also paid for by them.

Those who live in the country take no part in making the roads and streets of London, nor do the residents of London take any part in the same kind of work for country places. People who live in one city, or town, or district, do not manage the roads, and sewers, and lamps, and police, nor feed and clothe the poor of other towns and districts. The affairs of each *locality* are chiefly governed and paid for by the persons who dwell there.

Every person who owns or rents land or a house has to pay a share of the cost of this work; but the greater portion take no part in the actual work. They elect or appoint a number of the gentlemen who dwell in the locality to act for them. In cities and large towns this body of men is called a Town Council or a Corporation; in the metropolis (except in the City of London itself, which measures only about a square mile and has a Corporation) there are many such bodies, and they are termed Vestries. In small country places they are termed Local Boards, or Boards of Health. And those bodies who manage the workhouses and relieve the poor, whether in cities, towns, or small country places, are known as Boards of Guardians, that is, a Board or body of men who act as Guardians of the poor. The chief member of a Town Council is called the Mayor, formerly Maior or Major, which means the chief or the greatest among them.

As this business is done to increase the comfort of the people in a locality, the people themselves have to pay all the cost. This is a kind of tax, but the charge is called a *rate.* The meaning of *rate* is that the amount to be paid by each person is not a fixed sum for each, but is more or less in proportion to the value of his house or land. When it is known how much money will be needed, the amount is divided into smaller sums. Thus, if the money needed should be one thousand shillings, and all the property should be worth £1,000 a year, the amount would be one shilling to be paid for each pound's worth of property—this is at the *rate* of a shilling in the pound. Then a man whose rent is £20 would have to pay 20s.; and a man whose rent is £10 would pay 10s. And if twice as much were called for, it would be at the *rate* of 2s. in the pound. From this it will be seen that each person has to pay a share in proportion to the size or value of the house or land he occupies.

There is a separate *rate* for each kind of work. That which is charged for keeping and relieving the poor is called the "Poor's Rate." The people who live in a parish have to pay for the relief of the extremely poor in that parish; but not for those who may live in another part of the country, because it is a *local* charge. In some districts where the people are few a number of parishes are *united*, and for that reason they are called a *Union*, meaning "Union of Parishes." In such cases one workhouse will suffice for all the united parishes; but in places where there are many people there may be a workhouse for each parish. There are 650 parishes and unions in England and Wales, in the workhouses of which there are 175,000 poor people. And, besides these, 625,000 families receive bread and money from the Guardians, being too poor to earn all they need, but not poor enough to live entirely at the expense of the public. There are, then, 800,000 poor persons for whom the *Poor's Rates* have to be paid to the amount of more than £8,000,000 a year.

Another charge is the one in towns called a *Police Rate*, and in counties a *County Rate*. This latter is to pay the cost of keeping police to protect us against people who would do us harm, of sustaining poor lunatics in asylums, and a few smaller matters. It is a sad fact that out of the 25,000,000 people of this country, more than 16,000 are put upon trial for offences of a serious kind, and more than 12,000 of this number are sent to prison every year.

It is hoped that the rates for relief of poor persons and those for paying the cost of punishing people in prison may become less and less year by year. Over a large part of the country a *rate* for School Board purposes has now to be paid, to defray the cost of teaching all the children for whom schools did not exist before. This, with the aid of other public elementary school teaching, will, we hope, result in fitting them as men and women to fight the battle of life so as to depend less on the poor rates, and to act with such a regard for honesty and truth, and for the rights of other people, as to render prisons almost needless. There are at present about 3,000,000 children taught in schools, towards supporting which the

Imperial Parliament, as was mentioned before, grants out of the public taxes a sum now getting on towards £3,000,000 a year.*

---

con-cerned'
re-pair'-ing
pro-vis'-ion
cem'-e-ter-ies
ex-treme'-ly
ĕ-le-ment'-a-ry
rĕ'-sid-ents
oc'-cu-pies
re-liev'-ing
sus-tain'-ing
re-lies'
u'-ni-on

Lu'-na-tic, deprived of sense, mad.	
A-sy'-lum, a place of refuge where the helpless are taken care of.	
E-le-ment'-a-ry, simple, belonging to the first beginnings of anything.	

Summary.

We are called upon to pay rates for the following purposes:—To feed and clothe the poor, who from age or infirmity, or other cause, cannot feed and clothe themselves; to pay the wages of the police force; to make and repair the roads, and in nearly all towns and many villages for drainage, lighting, and paving; and for education in "Board Schools."

---

* This includes, however, many official expenses besides the money actually paid to the schools.

LESSON XXVIII.

POPULATION.

THE population—that is, the people—of England and Wales numbers 25,000,000. It increases by more than 2,000,000 in every period of ten years. But this rate of increase is not the same in all parts of the country; indeed, in a few districts the people are fewer year by year, and in some they increase very much faster than in others.

If all the people were equally spread through the whole land, there would be 430 persons to each square mile of ground. As some places are very crowded, counting thousands within a square mile, others must, of course, have very few people. London has more than 9,000 persons packed in the space of a mile square, while the county of Westmoreland has only 85. Why should these places vary so much? Chiefly because in the metropolis the means of earning a living are greater than among the bare mountains of the Lake district.

In Lancashire there are about 1,600 persons to a square mile, but as the northern part of that county forms part of the mountain land of the Pennine Chain, where very few people can earn a living, the southern portion must have a much higher rate than 1,600. Northumberland, too, has an average of only 200 people to each mile through the whole county; but a large portion of it is bleak and dreary, being part of the Pennine Chain, where only a few persons per mile can dwell, while the district on the banks of the River Tyne is the densest in the whole country.

In all the counties where mines and factories abound there are busy towns full of people. The population in these counties varies from 350 to 760 persons to each mile. But in the districts in which people live chiefly by farming, such as Shropshire, Wiltshire, Oxfordshire, Lincolnshire, and Rutlandshire, the people are spread about so thinly that the highest number does not exceed 330, while in some it is as low as 150 per mile. In those parts where bleak moors and mountains prevail—such as Cumberland, Westmoreland, and the North Riding of Yorkshire—the rate is from 140 to only 85.

From these figures we see that people most abound where the greater incomes can be earned. London, by its being the centre of the world's commerce and trade, and affording greater means of pleasure as well as many other advantages, attracts the greatest number of people. Next, the places where coal and iron are found; for there the people not only find profit in digging out these treasures from the earth, but also can work their factories and mills more cheaply where coal is ready to their hands than if they were farther away and had to pay for its transit.

Next in order are the farm and grazing lands, the richer parts of which attract more people, because the soil yields a greater profit, and the poorer parts support but few persons. The moorlands and mountains afford so little produce that a man must own or use very many acres to obtain a living; hence people are few, and houses are spread far apart. It is found that, except in and about London, there is no district outside a coal region that has more than 300 persons to a square mile.

Not only have the towns where mines and factories exist a greater number of people, but their increase from year to year is at a higher rate than that of other places. As the whole country shows a gain in the population each year, so do all the towns, whether devoted to industries or to trades or to agriculture. But the latter enlarge slowly as compared with the two former. And even when agricultural towns increase the number of residents, it is mostly by drawing them from the villages.

A few counties have been really decreasing in population of late years, but the large towns within those counties have been increasing. The county of Norfolk, during the ten years ended in 1871, lost 7,000 people; but its chief town, Norwich, gained 6,000. The county of Suffolk, in the same period, lost 1,000 people, while its chief town, Ipswich, was increased by 5,000. Wiltshire showed a decrease; while two of its towns, Salisbury and Devizes, had a larger population. These facts show that the people in the villages seek to cast farming aside, and dwell in towns where they may be engaged in trade. But in the districts where mines and factories employ the people, the rate of increase is surprising. The whole country gains about thirteen per cent. (that is, thirteen for every hundred) in ten years, while the county of Durham has increased 34 in every hundred; Surrey (which includes part of the metropolis), 30 to each hundred; Glamorgan (a mining district of South Wales), 25 in each hundred; Stafford (an iron-working county), 15 to every hundred.

---

pŏ-pu-la′-tion
in′-crease
drear′-y
de′-crease
dens′-est
earn′-ing
a′-gri-cul-ture
in′-comes
dis′-trict
a′-ver-age
sur-prise′
com′-merce

LESSON XXIX.

HISTORY OF THE NAMES OF PLACES.

THE earliest language that can be traced in this country is a form of the Celtic, spoken by a race of people called the Celts, who originally came from Asia and invaded Western Europe, some of their tribe settling in the land which we now occupy. To this race belonged the people called Britons, who resided here when the Romans came nearly two thousand years ago. The Romans were followed about four hundred years later by the Jutes, Saxons, and Angles; these were succeeded by the Danes, and the Danes by the Normans.

It is natural that the people who settle in a country should call their dwellings, their villages, towns, rivers, and districts by names growing out of their own language; and thus we might reason that every new race of conquerors would give new names to many of the parts they occupied, while the people whom they subdued would retain many of the names by which they had all along known the district.

Some towns and villages held by the former race would continue to be known by the old names; others, seized and retained by the invaders, would be honoured with a name familiar to the new-comers. The towns and villages, the mountains and valleys, the streams and harbours of England have wondrous stories of the past linked with the present in the names by which they are known. These names are landmarks of history, and tell-tales of invasions, wars, and settlements, as clearly as if the places themselves were open books, with their history carved or painted in figures which could not die out.

The Britons once spread all over the land, which they called "Prydhain"—a name afterwards changed to "Britain"—and they naturally called places by words found in their own language. But these people were half savages; and when they were conquered by the Romans, who were more learned and cultivated, and who held possession of a large part of the country during three hundred years, the names of places received a Latin form, especially in those districts where the invaders chiefly settled. The invaders gained and held their ground by war; hence we find that a large number of towns indicate by their names not only Roman triumph, but also the fact of being occupied by legions of soldiers. Indeed, the warriors were soldiers only so long as their efforts to colonise were opposed; after they had completely obtained possession they became farmers and manufacturers, statesmen, and constructors of public works. Their occupation of some of the most prominent parts of the country is still told in the names which have lived through all succeeding time. When they took the district of the River *Lune*, they formed a "camp" and built "forts;" hence the name of the place Lune-castra (now Lan*caster*), which meant Lune-camp or Lune-fort. In like manner they built a fort on the river *Don*, which was called Don-castra (now Don*caster*), meaning the fortification on the Don; also on the *Exe*, since called Exeter (Ex*cester*).

CHESTER, ON THE DEE.

From this we see that such towns as Ro*chester* (camp on the Roche), Col*chester* (on the Colne), *Chester*, Win*chester*, Wor*cester*, Lei*cester*, Tad*caster*, and many others, were places which the Romans gained by the sword and the spear and the hardships of the *castra* or camp-life. But many of the old British or Celtic names lived on in spite of the Romans. From the Celtic language we have still three rivers known as "Avon," which means "water;" and several towns commencing with "Aber," signifying the mouth of a river—as *Aber*conway (mouth of the Conway), *Aber*gavenny (mouth of the Gavenny), &c.

When the Romans left Britain the country was overrun and conquered by the Saxons* from Denmark and Holstein.

Hundreds of names tell us of the Angles and Saxons. Essex meant East Saxons; Sussex, South Saxons; and Middlesex the Middle Saxons. Norfolk and Suffolk referred to Northernfolk and Southernfolk, into which sections the East Anglian kingdom was divided.

There is much interest attached to the name of Wales. When the Angles and the Saxons invaded Britain on the east, the Britons who were not killed, and who preferred not to submit to their conquerors, fled to the mountainous parts in the west. They were termed "Wealhas" by the Saxons, a name which meant foreigners; and from this term we have the words "Wales" and "Welsh."

---

* The Britons called all the invaders by this name, but, as before explained, they belonged really to three tribes:—the Jutes, who settled in Kent; the Saxons, who settled chiefly in the South and South Midland districts; and the Angles, who settled in the Eastern, North-Eastern, and North Midland districts. The union of these tribes is called Anglo-Saxon.

The word "shire" speaks of a division of land. When a Saxon king would create an earl, it was not merely to give him a title, but also a "share" or "shire" of land to govern.

A few types of words telling us of the Saxon settler and his habits cannot fail to be of interest.

The word "burne" means a stream or brook, and is sometimes written "bourne" or "burn." When we find towns and districts whose names contain this syllable in one form or other, we at once trace its connection with our Saxon forefathers. Thus Hol*born* (in London), formerly called Hol*bourn*, and earlier still Old-*bourne*; Black*burn*, Ravens*bourne*, *Bur*ton (a corruption of *Burn*-town), all belong to this family of stream valleys.

Combe, a hollow place, partly shows the origin of such names as Al*comb*, Wy*combe*.

Den, a woody hollow, calls our attention to the origin of such names as *Den*bigh, Tenter*den*, &c., viz. towns in valleys.

Hithe means a small fort or haven; hence Green*hithe*, Rother*hithe*.

Towns having some form of the word *stoc* were places once *stock*aded or fenced round with stocks or piles; of these we have *Stoke*, *Stock*bridge, *Stock*port, *Stoke* Pogis, and various others. The

Saxons were lovers of privacy, and hedged-in their farms or dwellings. Their rickyards and farm-houses formed the nucleus of a village; then the village grew into a town, and, last stage of all, the TOWN (originally *tun*, an enclosure) has come to denote, not the one small croft enclosed from the field or the forest by the first Saxon settler, but the dwelling-place of a vast population.

From the word *weald*, which means a "wood" or "forest," we get *Wald*en, *Wal*tham, *Wal*thamstow, the *Wealds* in Kent, the Cots*wold* Hills, &c.

From *Worth*, a farm or small village, we have Bos*worth*, Bridge*worth*, Kenil*worth*, Tam*worth* (the village on the Tame), Wal*worth*, Wands*worth* (the village on the Wandle), &c.

From *Ham*, which means "a dwelling," we have Bucking*ham*, Notting*ham*, Hors*ham*, and many others.

The Danes gave names to many places. We can actually trace by the names of places the limits of the country occupied for a long period by the Danish colonists. The word *by* meant in their language an "abode," or a "single farm," and the villages which grew around each of these dwellings were usually named after some object of interest. The Danes invaded England on the eastern coast, and settled chiefly in Lincolnshire, from which place they spread inland over the neighbouring counties. By an agreement between Guthrun (the Danish chief) and King Alfred, the Danish district was divided from the English kingdom by a line passing from the Thames along the old Roman road called Watling Street, which stretched from Canterbury and through London to Chester. On the north-eastern side of this line we find at least six hundred places whose names end with *by*, including Grims*by*, Nether*by* (low town), Whit*by*, Der*by* (town on the Der, now called the Derwent), Sel*by*, Rug*by*, Apple*by*, &c. More than one hundred are in Lincolnshire alone. Even to this day, so strong a hold has the word *by*, as applied to a locality, that the word *by*-law is the name for a law adopted for a special locality. Properly it means the law of the *by* or town. The Thames and the adjacent coasts being largely visited by the Danes, speak the fact in the names of places: the Fore*ness*, the White*ness*, Foul*ness*, Sheer*ness*, and the *Naze* (near Harwich), Dunge*ness* (Danger*ness*)—each of these tell of a projecting NOSE of land, which is the meaning of the word *ness*.

The Normans made great changes in the language, but very few in the names of places. The Saxon officer by the title of "earl" was displaced by the Norman "count," and the "shire" over which he ruled was called a "county." But the two pairs of names have lived side by side, and the wife of an "earl" is to this day styled "countess."

---

lan'-guage
sub-dued'
ear'-li-est
o-rĭ'-gin-al-ly
sig'-ni-fy-ing
neigh'-bour-ing
con'-quer-ors
in-văd'-ers
con-struct'-ors
at-tached'
prĭ'-va-cy
ad-ja'-cent

The following words or syllables which give names, or parts of names, to towns and villages, rivers, hills, capes, &c., are derived from—

1. The Britons.

Avon, *water.*
Aber, *mouth of a river.*

2. The Romans.

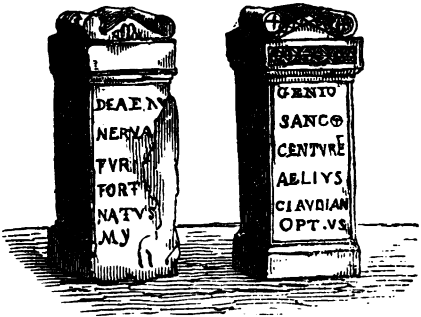
Castra, *a fort or camp.*

3 The Saxons.

Burne, *a stream or brook.*
Combe, *a hollow.*
Den, *a woody hollow.*
Hithe, *a fort or haven.*
Stoc, *fenced in.*
Wald, *wood.*
Worth, *farm.*
Ham, *enclosure.*

4. The Danes.

By, *abode.*
Ness, *nose or cape.*



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